ARI Research Note 2011-05

Development and Evaluation of a Career Continuance Model for Company Grade Officers in the United States Army

Robert J. Schneider, Jeff W. Johnson, Caroline C. Cochran, Sarah A. Hezlett, and Hannah J. Foldes
Personnel Decisions Research Institute, Inc.

Kelly S. Ervin
U.S. Army Research Institute

Personnel Assessment Research Unit
Michael G. Rumsey, Chief

March 2011

United States Army Research Institute
for the Behavioral and Social Sciences

U.S. Army Research Institute
for the Behavioral and Social Sciences

Department of the Army
Deputy Chief of Staff, G1

Authorized and approved for distribution:

MICHELLE SAMS
Director

Research accomplished under contract
for the Department of the Army

Personnel Decisions Research Institutes, Inc.

Technical reviews by

Peter Legree, U.S. Army Research Institute
Lynn Milan, U.S. Army Research Institute

NOTICES

DISTRIBUTION: Primary distribution of this Research Note has been made by ARI. Please address correspondence concerning distribution of reports to: U.S. Army Research Institute for the Behavioral and Social Sciences, Attn: DAPE-ARI-ZXM, 2511 Jefferson Davis Highway, Arlington, Virginia 22202-3926.

FINAL DISPOSITION: This Research Note may be destroyed when it is no longer needed. Please do not return it to the U.S. Army Research Institute for the Behavioral and Social Sciences.

NOTE: The findings in this Research Note are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

REPORT DOCUMENTATION PAGE

1. REPORT DATE (dd-mm-yy):	2. REPORT TYPE:	3. DATES COVERED (from. . . to)
March 2011	Final	March 2006 to May 2009

4. TITLE AND SUBTITLE	5a. CONTRACT OR GRANT NUMBER
Development and Evaluation of a Career Continuance Model for Company Grade Officers in the United States Army	DASW01-03-D-0016-0024
	5b. PROGRAM ELEMENT NUMBER 622785

6. AUTHOR(S)	5c. PROJECT NUMBER
Robert J. Schneider, Jeff W. Johnson, Caroline C. Cochran, Sarah A. Hezlett, and Hannah J. Foldes (Personnel Decisions Research Institutes, Inc.); Kelly S. Ervin (U.S. Army Research Institute)	A790
	5d. TASK NUMBER
	5e. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
Personnel Decisions Research Institutes, Inc 650 3rd Avenue S., Suite 1350 Minneapolis, MN 55402	

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. MONITOR ACRONYM
U. S. Army Research Institute for the Behavioral & Social Sciences ATTN:DAPE-ARI-RS 2511 Jefferson Davis Highway Arlington, VA 22202-3926	ARI
	11. MONITOR REPORT NUMBER Research Note 2011-05

12. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

Contracting Officer's Representative and Subject Matter POC: Dr. Kelly S. Ervin

14. ABSTRACT *(Maximum 200 words)*:

We present a dynamic model of company grade officer career continuance that is designed to inform future interventions intended to retain company grade officers, as well as to inform future research to enhance understanding of the retention process. Both a taxonomic model and a process model are presented, with the taxonomic model defining the constructs included in the process model, and the process model specifying relationships between constructs. A number of moderator variables are hypothesized, which are especially important for suggesting interventions to increase retention. Those moderator variables are consistent with interventions implemented as part of project STAY, and also suggest future interventions beyond the scope of that project. We conducted an initial evaluation of the model using (a) data obtained from existing officer surveys and tracking databases, and (b) evaluations of the interventions implemented as part of this project. We found empirical support for several hypotheses derived from the model, and suggest directions for future research.

15. SUBJECT TERMS

career continuance, Army company grade officers, Officer retention, Interventions for improving continuance

SECURITY CLASSIFICATION OF			19. LIMITATION OF ABSTRACT	20. NUMBER OF PAGES	21. RESPONSIBLE PERSON
16. REPORT	17. ABSTRACT	18. THIS PAGE			
Unclassified	Unclassified	Unclassified	Unlimited	85	Ellen Kinzer Technical Publication Specialist, (703) 545-4225

ARI Research Note 2011-05

Development and Evaluation of a Career Continuance Model for Company Grade Officers in the United States Army

Robert J. Schneider, Jeff W. Johnson, Caroline C. Cochran, Sarah A. Hezlett, and Hannah J. Foldes
Personnel Decisions Research Institutes, Inc.

Kelly S. Ervin
U.S. Army Research Institute

Personnel Assessment Research Unit
Michael G. Rumsey, Chief

U.S. Army Research Institute for the Behavioral and Social Sciences
2511 Jefferson Davis Highway, Arlington, Virginia 22202-3926

March 2011

Army Project Number
622785A790

Personnel, Performance and Training Technology

DEVELOPMENT AND EVALUATION OF A CAREER CONTINUANCE MODEL FOR COMPANY GRADE OFFICERS IN THE UNITED STATES ARMY

EXECUTIVE SUMMARY

Research Requirement:

This report summarizes research carried out pursuant to the United States Army Research Institute for the Behavioral and Social Science's (ARI's) Contract # DASW01-03-D-0016-0024, under the auspices of its Personnel Assessment Research Unit (PARU). Retention is a significant issue for lieutenants (lieutenants) and captains (captains) as they contemplate remaining in the Army after completion of their first active duty service obligation (ADSO). It is also a significant issue for the Army, because the strength of the Army's officer corps is determined in part by whether or not company grade officers remain in the Army and advance from company grade officers to field grade officers and beyond (Langkamer & Ervin, 2009). In response to the need to improve retention among enlisted Soldiers and company grade officers, ARI instituted a research program entitled "Strategies to Enhance Retention" (code named "STAY"). The officer portion of the STAY program sought, over a three-year period, to improve the continuance of the Army's company grade officers. The purpose of the research described in this report was to develop and evaluate a model of officer retention to guide development of interventions and inform future research.

Procedure:

The model described in this report was derived from several sources. We conducted a selective review of literature most relevant to officer retention and identified variables likely to drive retention. In addition, we conducted a series of focus groups and interviews with officers ranging in rank from second lieutenants to colonels at Forts Bragg, Hood, Riley, and Lewis. A significant part of these focus groups and interviews involved obtaining information about the factors influencing the retention decision. Information identified from the literature was integrated with information obtained from focus groups and interviews and a taxonomy of retention-related variables was created that is both comprehensive and useful.

The dynamic process model was formulated by first reviewing existing research to determine the magnitude of the empirical relationships between variables in our taxonomy. Second, we examined structural equation models in the literature to suggest a reasonable set of causal relationships for the variables, including identification of potential moderators. Third, we determined those parts of the enlisted attrition model that were relevant to the officer retention model and integrated our model with those aspects of the enlisted model.

The model that we ultimately developed represents a blend of the best available empirical research, innovative conceptualization underlying the enlisted attrition model, and our professional judgment of how to make the model maximally responsive to project requirements.

Findings:

At the broadest level, our model consists of the following variable categories: (a) person variables; (b) context; (c) perceived context; (d) context evaluation; (e) health; (f) commitment; (g) retention cognitions (including thoughts of leaving and intentions to leave); (h) critical events; (i) coping effectiveness; (j) social support; (k) various moderators (e.g., time, communication, perceived economic constraint); and (l) the retention decision. Organizational commitment (composed of affective commitment, normative commitment, and investments) was identified as the primary determinant of retention, although we added thoughts of staying/leaving and intention to stay/leave as mediators between commitment and retention. The determinants of commitment are (a) person variables, (b) overall evaluations of the context surrounding the officer (e.g., perceived organizational support, overall job satisfaction, perceived family satisfaction and support) and (c) health (psychological and physiological). The determinants of context evaluations are (a) person variables and (b) officers' perceptions of the context relevant to their work, family, unit, command, organization, and career, as filtered through the officers' own perceptions. The determinants of health include (a) perceived context, (b) context evaluation, and (c) coping effectiveness. Social support is posited to directly affect coping effectiveness, as well as to moderate (a) the relationship between coping effectiveness and health outcomes and (b) the relationship between intention to stay/leave and the retention decision. Coping effectiveness is posited to have a bidirectional relationship with health, and to moderate the relationships between (a) perceived context and health, and (b) context evaluation and health. An important aspect of the model is its inclusion of critical events that officers experience periodically throughout their careers. Examples of critical events include marriage, deployments, job offers, broken promises, and health problems. Critical events lead directly to thoughts of leaving or staying, and can also influence personal variables directly.

There are numerous potential moderator variables influencing relationships at different points in the model. For example, the quality of communication can moderate the relationship between certain context variables and perceptions of those variables. The most pervasive moderator, however, is time, which impacts nearly every variable in the model, and exerts its impact in myriad ways. Moderator variables are an extremely important aspect of the model, because they speak most directly to potential retention-enhancing interventions.

We conducted an initial evaluation of the model using (a) data obtained from existing officer surveys and tracking databases, and (b) evaluations of the interventions implemented as part of this project. We found empirical support for several hypotheses derived from the model. For example, we found evidence for (a) the moderating effect of time left in service obligation on the relationship between intention to leave and separation behavior, (b) the moderating effect of perceived economic constraint on the relationship between thoughts of staying/leaving and intention to stay/leave, (c) thoughts of leaving partially mediating the relationship between commitment and intention to stay/leave, and (d) the direct effect of the critical event of having a first child on thoughts of staying/leaving.

Utilization and Dissemination of Findings:

There are several ways in which the model can be utilized. First, it can be used to formulate additional interventions that could be implemented and evaluated. These could come from moderators already proposed or additional moderators, beyond the illustrative moderators specified in this report. Second, the model can be used to generate a number of research questions that could be tested, beyond those that were evaluated as part of this project. Given its complexity, we do not recommend that the model be distributed in its present form to potential users (e.g., Battalion commanders). It can, however, be used to generate guidelines about important things to consider when trying to retain company grade officers. Third, it can be used as a springboard for further model development. Further model development would result in opportunities for acquiring additional knowledge about the retention process and developing new interventions based on that knowledge.

DEVELOPMENT AND EVALUATION OF A CAREER CONTINUANCE MODEL FOR COMPANY GRADE OFFICERS IN THE UNITED STATES ARMY

CONTENTS

LIST OF TABLES

LIST OF FIGURES

Introduction

Statement of the Problem

The U.S. Army requires officers who have developed or can develop the qualities needed for high job performance and organizational effectiveness, and who choose to stay with the Army for significant periods of time. This need is especially critical given the current military climate, in which it is increasingly challenging to supply Army personnel and other resources at levels required by overseas contingency operations.

Retention is a significant issue for lieutenants (lieutenants) and captains (captains) as they contemplate remaining in the Army after completion of their first active duty service obligation (ADSO). It is also a significant issue for the Army, because the strength of the Army's officer corps is determined in part by whether or not company grade officers remain in the Army and advance from company grade officers to field grade officers and beyond (Langkamer & Ervin, 2009). Officers in their first ADSO indicate that their intention to leave the Army is a result of a number of factors, including lack of work predictability, excessive operational pace, unmet career expectations, and perceptions that the Army is not committed to them or their families (Johnson, Hezlett, Mael, & Schneider, 2009).

The loss of officers after their first ADSO is expensive in both monetary and non-monetary terms. In monetary terms, a great deal of money is invested in officer training, both pre- and post-commission. Losing those officers to the civilian sector is expensive. In non-monetary terms, loss of officers results in lost training and experience, lower overall productivity, and reduced military readiness (Gencer, 2002).

Virtually all Army officers enter at the lowest officer rank, are trained, and rise through the ranks. Virtually no positions are filled through lateral entry. The lack of lateral entry, the number of officers choosing to leave upon completion of their first ADSO, and the high demand for trained Army personnel made improving officer retention a critically important need at the time this research was conducted.

In response to this need, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) instituted a research program entitled "Strategies to Enhance Retention" (also referred to as "STAY"). The officer portion of the STAY program sought, over a three-year period, to develop and test methods to improve the continuance of the Army's company grade officers. In this program, "company grade officers" are commissioned officers (principally, lieutenants and captains) in their first obligation who are part of the Active Army, Army Reserves, and Army National Guard.

Purpose of this Report

This report revises and supplements a report in which a model was described that laid groundwork for addressing the retention issue (Schneider, Johnson, Cullen, Weiss, Ilgen, & Borman, 2006). In that report, we identified constructs most relevant to officer retention based on review of extant literature, analysis of the extensive information we had gathered from officers in focus groups and interviews, and our own professional judgment. In addition to identifying relevant constructs, we built on existing models and other relevant literature to

hypothesize relationships between those constructs. The resulting model (a) provided definitions of each construct, (b) provided empirical and/or rational bases for relationships between constructs, and (c) suggested interventions most likely to enhance officer retention. At various points in that report, we suggested linkages between aspects of our model and possible interventions to make the relevance of the model clear.

Subsequent to delivery of the preliminary reports in 2006, we revised the officer retention model to take into account (a) additional research literature that has informed our understanding of the officer retention model's content and process, (b) analysis of 2005 and 2007 *Survey on Officer Careers* (*SOC*) data relevant to the model, (c) results from evaluations of the three officer retention interventions implemented as part of this project, and (d) review by subject matter experts.

The review of the model by a panel of subject matter experts took place on February 18, 2009, after most model revisions had been made. The purpose of this meeting was to provide a final check on the model's relevance and apparent accuracy. We also wanted to make sure that the model made sense to its potential users.

The subject matter experts ranged from captains to colonels. Individuals at the meeting included:

- 2 representatives, Deployment Cycle Support G-1, DAPE-MPO
- Representative, Officer Retention Branch Human Resources Command
- Representative of Officer Personnel Management System Task Force, Human Resources Command
- Representative of Headquarters, Department of the Army Equal Opportunity Plans
- Battalion Commander, Infantry Regiment
- Representative of a Headquarters Battalion
- Representative of Military Police Detachment

In addition, several ARI personnel attended, including the Chief of its Personnel Assessment Research Unit, the officer retention project's contracting officer representative , and the Project STAY team leader. As such, a broad range of stakeholders were present, representing a variety of different perspectives, constituencies, and expertise.

Subject matter experts were thoroughly briefed on the content of the model. This included a broad overview of the model, as well as definitions of key terms and relationships in the model. We sought to determine (a) whether the links specified in the model made sense to subject matter experts, (b) whether anything in the model was inconsistent with subject matter experts' experiences, (c) whether the model omitted any important variables, and (d) whether subject matter experts believed that the model would be useful in helping them generate approaches to improve officer continuance rates. This three-hour meeting generated a great deal of useful discussion.

In general, feedback on the model was very positive. Subject matter experts believed the model was relevant to Army retention concerns, and captured the officer retention process well.

The majority of the discussion involved recommendations regarding optimal use of the model, which are described in Johnson et al. (2009). The subject matter expert panel also made several observations and recommendations that resulted in modifications that improved the model. Specifically:

- Subject matter experts observed that the model was overly complex. There was some concern that this would cause the key messages of the model to be submerged amidst all the different construct interrelationships. Based on this observation, we removed several constructs that were more peripheral to the retention decision, significantly simplifying the model without loss of key content.
- A separate construct called *appraisal of critical events* was incorporated into the construct *thoughts of staying/leaving*. This made sense conceptually, and also further simplified the model.
- A construct labeled *burnout* was removed as a mediator between the constructs of *context evaluation* and *commitment*. The placement of burnout as a mediator was tentative, and burnout seemed to fit better as a facet of psychological health within the *health* construct.
- Because health now included burnout, we added a direct path from health to commitment based on the previously hypothesized direct effect of burnout on commitment.

This project took place simultaneously with a similar project that addressed the related problems of attrition and reenlistment among enlisted Army personnel. A model, similar to the one described in this report, has been formulated and described in separate ARI Research Notes (Weiss, Ilgen, & Borman, 2006; 2009). While differences exist between enlisted personnel attrition/reenlistment and officer retention, there are similarities both in the goals of the projects and the models formulated to describe processes resulting in attrition or retention. Consequently, to the extent possible, the model described in this report is intended to be consistent with the enlisted continuance model. Where necessary, however, this report and the officer retention model diverge from the enlisted model and report to provide the most accurate and comprehensive model possible.

The remainder of this report is organized into five sections. First, a brief description of existing models is presented, including a discussion of aspects of those models that limit their utility for addressing officer retention. Second, we describe basic characteristics and assumptions of the model described in this report. Third, we present the revised model itself, including methodology used to formulate it, a taxonomy of variables relevant to company grade officer retention, and a process model depicting relationships between those variables. Fourth, we present results of empirical analyses testing various elements of the model. Data were obtained from existing officer surveys, tracking databases, and evaluations of the interventions implemented as part of this project. Finally, we summarize the major points of this report and make recommendations for future research.

Nature of Existing Models

There is a large body of empirical work in the Armed Forces in general, and the Army in particular, examining predictors of retention and separation. Accompanying this body of empirical work has been a substantial amount of model building. Yet, there is a sense that existing research has provided neither the explanatory power nor the guidance for interventions required to help address this critical retention problem. In this section, we provide a brief overview of existing work. In doing so, we point to certain deficiencies limiting that work that must be addressed in future model development.

Weiss, MacDermid, Strauss, Kurek, Le, and Robbins (2003) reviewed general approaches to the study of separation in both military and civilian research. They observed that military research has generally fallen into one of three categories. First, large-scale survey research has been conducted where the primary purpose was to investigate how numerous factors relate to or predict the retention intentions of military personnel. Sometimes these studies have been focused specifically on retention. In other cases, they have involved secondary analyses of data collected for other purposes.

Second, military researchers have investigated the application of utility principles from economic models of occupational choice to the study of military retention. With respect to military personnel, the utility maximizing framework implies that individuals seek to maximize utility by making a decision either to stay in the military or leave the military for the civilian sector. Utility in either the military or civilian sector is dependent upon the financial and non-financial factors associated with each. Financial factors are those such as military pay and perceived earning opportunities in the civilian sector. Non-financial factors are those associated with a particular occupational setting, such as work hours, time away from home and family, preference for military service, and length of commute. According to these models, individuals seek to maximize utility by choosing the occupation in which the financial and non-financial benefits provide the highest level of actual and anticipated satisfaction (Hogan & Black, 1991; Mackin, Mairs, & Hogan, 1995; Warner & Goldberg, 1984).

Third, military research has developed various conceptual models of military separation (e.g., Kerr, 1997). These models tend to be structural models of the predictors of behavioral intentions. In some cases, they have been attempts to translate models developed in civilian populations. In other cases, they have been models unique to the military.

Each of these three strategies has provided useful information about the correlates of retention decisions. Additionally, the application of economic models in particular has provided useful policy guidance by providing predictions of retention rates given mostly financial policy interventions. As a group, however, these strategies suffer from a number of limitations.

First, few of these models describe the processes by which individuals decide to separate from the service. Instead, they rely on identifying predictors of separation or separation intentions. Those models that do specify psychological processes leading to separation decisions either lack a military context or provide a very limited description of those processes.

Second, these approaches give little attention to the role of time in separation processes. They do not discuss the way attachments to the military unfold dynamically over time, how individuals take different paths toward their separation decisions, how events at one time influence retention-related beliefs at a later time, or how military experiences themselves have a time-dependent structure.

Third, these approaches give no role to the nature or consequences of the military "experience," focusing instead on the predictive utility of various features of the military (such as pay and leader quality). These features represent important contextual features of military life, but it should not be forgotten that the experiences of officers are the primary proximal influences on their beliefs and decisions.

It is not our intent to disparage previous work, but rather to build on it. Indeed, throughout this report, we refer to relevant extant research to inform the development of our model, recognizing its rigor and usefulness.

Characteristics/Assumptions of the Officer Career Continuance Model

Our overall objective was to develop a dynamic, experiential, comprehensive, and accurate process model of Army company grade officer career continuance beyond the first ADSO that can guide research and suggest interventions to enhance retention. In this section, we describe characteristics and basic assumptions of our model that enable it to meet this objective.

Retention is a Consequence of Commitment

Consistent with other perspectives (Gade, Tiggle & Schumm, 2003; Meyer & Allen, 1997), we believe that attachment is the proximal cause of retention-related thoughts, intentions, and behaviors. As such, we focused on identifying antecedents of attachment, and the process by which attachment affects retention decisions. In organizational research, the concept of attachment is generally labeled *organizational commitment*. Organizational commitment is the psychological state that characterizes an individual's attachment to an organization, and has been shown to have implications for the decision to continue membership in that organization (Meyer & Allen, 1997). Related concepts include identification, loyalty, and allegiance.

Theoretical and empirical work suggests that organizational commitment is structured hierarchically with a general, global commitment construct subsuming three relatively distinct sub-types: (a) affective, (b) continuance, and (c) normative commitment. Global commitment is a desire to maintain one's relationship with an organization; in this case, the military. The three sub-types or dimensions represent different sources of attachment.

Affective commitment is attachment based upon how much an organization member wants to remain with the organization because he or she enjoys being a part of it, because the organization's values are consistent with the member's values, or because the member sees his or her needs as being met by membership in the organization. *Continuance commitment* refers to an organization member's perception of the costs or benefits associated with leaving the organization. This includes perceptions of constraints holding the person in the position (e.g., lack of alternatives or investments made in the organization). Finally, *normative commitment* refers to organization members' perceptions of moral or social obligation to the organization. These three types of commitment can be characterized as staying in an organization because one "wants to," "has to," or "ought to," respectively.

Some researchers have made a compelling case for drawing a distinction between two facets of continuance commitment. McGee and Ford (1987) factor analyzed Meyer and Allen's (1997) continuance commitment scale and found two factors. They labeled the first factor Low Alternatives, which included items measuring the availability of alternative employment options. Here we are talking about factors that constrain people from leaving jobs in spite of a possible desire to leave. They labeled the second factor High Sacrifice, which includes items measuring the costs of leaving. This reflects investments that the individual would lose if he or she left the organization and/or the area in which the job is located. Investments accumulate over time and include things that are intrinsic to the job (e.g., years of service, training that is not transferable to a new job) and external investments (e.g., friendships, home, community ties; Rusbult & Farrell, 1983). Jaros (1997) found that these two facets of continuance commitment correlated differentially with turnover intention.

In our model, we split continuance commitment into two separate variables. We refer to McGee and Ford's (1987) Low Alternatives as perceived economic constraint and High Sacrifice as investment (cf. Rusbult & Farrell, 1983). Investment replaces continuance commitment as the sub-type of overall commitment that has a direct effect on thoughts of leaving. Perceived economic constraint is more appropriately conceptualized as a moderator variable, as described below.

Experiences Drive Change in Commitment

Although officers possess particular levels of commitment to the Army at the time of commissioning, *changes* in commitment are largely a function of experiences encountered over time. Things happen to people. They have critical experiences that shape their beliefs, attitudes, interpretations, knowledge, and judgments based on that knowledge. Static models focus on the extent to which various constructs predict commitment or retention, neglecting the experiences that shape commitment and, consequently, retention decisions. We believed that specification of the experiences that produce change in commitment levels would yield a model that would produce a richer set of hypotheses, thereby making predictions that static models would not. This is especially critical for a model that is designed to suggest interventions to enhance retention. Specification of experiences that produce commitment change suggest ways of modifying those experiences to induce more officers to stay beyond their first ADSO.

We defined the term *experience* very broadly as the conscious events that make up an officer's life, as perceived by that officer. There are a number of distinct dimensions of experience. For example, experiences can differ in breadth. Some are broad like a deployment, which can be broken down into a number of sub-experiences; and others are narrower, such as having one's performance recognized by one's commanding officer. Some present major challenges to the well being of officers and their families and others are minor irritants. Some are positive and others are negative. Some are expected and others are unexpected.

These events and experiences serve to shape officer commitment. They may also cause them to rethink well-established beliefs. A model of the retention process must take into account the essential features of these experiences, how people respond to them, and how they eventuate in changes in commitment.

Investments can be either material or psychological. We believe that psychological investments accrue in proportion to the number and degree of challenges an officer has encountered and successfully negotiated. Challenges can be any number of things, such as the difficulty of getting through pre-commissioning training, critical events, or the more minor daily "hassles" inherent in Army life. Each time an officer works through a challenge successfully, his or her sense of investment should increase. Investments are therefore expected to accumulate over time.

Need to Incorporate "Critical Events" as a Special Type of Experience

According to Lee and Mitchell (1994, p. 60), "a shock to the system is hypothesized to be a very distinguishable event that jars employees toward deliberate judgments about their jobs and, perhaps, to voluntarily quit their jobs." We replaced the term "shock" with the term "critical

event" to better reflect the fact that these experiences can be both positive and negative to officers. Critical events act as catalysts that start a rational thought process concerning the retention decision. They are to be distinguished from events that produce affective reactions alone, or cognitions unrelated to retention. As noted by Weiss et al. (2003), acquiring knowledge of the critical events that Army officers will be likely to encounter during their first ADSO and the relative impact of those critical events on commitment and retention decisions will greatly enhance our understanding of the influences on Army officer retention.

Need to Incorporate Time

Retention models can be either static or dynamic. As described above, static individual-level models take features of the environment or characteristics of individuals at a given point and correlate them with retention intentions (or other withdrawal behaviors) at that same point in time or in the future. Although such models implicitly recognize that the key features of both environments and individuals can change over time, they make no real attempt to account for those changes. By contrast, dynamic models attempt to describe the series of actions, events, and changes in states that occur over time and culminate in retention decisions. As we approached model development, we made several assumptions about the role that time would play in our model:

1. Officers come to the Army with different levels of commitment, and these levels of commitment can and likely do change over time. The changes are the result of each officer's experiences interacting with his or her personal characteristics and history.

2. Time would serve as a moderator variable in our model in the sense that the relationship between critical events and other determinants of commitment/retention is affected by an officer's proximity to the end of his or her first ADSO. More specifically, the closer an officer is to the end of his or her first ADSO, the greater the impact of a critical event or other determinant on commitment and, therefore, retention.

3. Time would also be important in that the accumulation of experience is often (though not always) important in a way that single experiences are not. For example, successful resolution of critical events and other challenging daily experiences is instrumental in the development of self-efficacy in domains critical to the retention decision. Such self-efficacy is likely to serve as a buffer between future critical events and challenges and thoughts of leaving the Army. On the other hand, consistently negative daily experiences are likely to produce negative attitudes that are increasingly resistant to change as they accumulate over time.

4. The enlisted attrition model described in Weiss et al. (2006) goes further by identifying "career units," defined as "discrete blocks of common and major experiences ... that have a coherence and common meaning... [and which] are key stages in Army life." We do not incorporate career units into our model of officer retention. While there are analogues to enlisted career units in the careers of junior commissioned officers, our model is not one of attrition, but focuses instead on the decision to stay beyond the first ADSO. As such, the differential permeability of the organizational boundary across time that is inherent in the careers of enlisted personnel, and which suggests critical intervention points, is not

especially relevant to an officer retention model. Moreover, the career units of company grade officers do not form a consistent sequence, making nomothetic description extremely difficult. The career trajectories of company grade officers during the first ADSO are too idiosyncratic, and whatever commonalities they may have do not enhance prediction of retention.

Need for a Taxonomy of Variables Influencing Retention

In order to create a high quality process model of retention, we first needed to know what constructs must be included. We therefore sought to develop a comprehensive list of such constructs to maximize prediction and understanding of retention decisions and to avoid overlooking potentially fruitful interventions to increase retention. In addition, formulation of a taxonomy required us to group related constructs together to identify broad construct domains. This made our model both comprehensive and parsimonious.

Need to Incorporate Psychological and Physiological Health

While our preliminary model incorporated health at the time of accession, psychological and physiological health as they unfold during the first ADSO play a major role in retention decisions. Physiological health problems involve organic insults to the body such as broken or lost limbs, cognitive impairments due to head wounds, or physiological damage caused by infectious disease. Psychological health problems include depression, anxiety, and posttraumatic stress syndrome.

One psychological health problem that may be particularly relevant, and perhaps easily overlooked because it is less dramatic than other health issues such as PTSD or loss of limb, is burnout. *Burnout* is an affective response to ongoing stress resulting in the gradual depletion over time of an individual's energy. While there are competing conceptualizations of the dimensions of burnout (e.g., Halbesleben & Bowler, 2007; Maslach, Schaufeli & Leiter, 2001; Shirom, 2003), all incorporate exhaustion as a core component. Exhaustion manifests as emotional exhaustion, physical fatigue, and cognitive weariness (Melamed, Shirom, Toker, Berliner, & Shapira, 2006). *Emotional exhaustion* involves feeling that one does not possess the energy to invest in work relationships, resulting in interpersonal withdrawal; *physical fatigue* refers to feeling tired and having little energy to carry out daily work tasks; and *cognitive weariness* refers to slowed cognition and reduced mental agility. Two other dimensions of burnout that have repeatedly emerged in factor-analytic work are (a) *depersonalization*, meaning that individuals are negative, cynical, or detached from coworkers/clients; and (b) a reduced sense of *personal accomplishment* -- feelings that one's competence and productivity have declined. Given the U.S. Army's current operational tempo, and especially repeated deployments with limited recovery time, we believe that burnout is an important construct to incorporate into our model. Meta-analytic data have linked burnout to lower job satisfaction, lower organizational commitment, and higher turnover intentions, among other likely antecedents of retention behavior (Lee & Ashforth, 1996).

We recognize that addressing health issues is not central to ARI's overall mission. We nonetheless include health constructs in our model because of their relationships to constructs that are central to understanding and predicting officer retention (e.g., commitment). Because of

these relationships, incorporating health-related constructs such as burnout, social support, and coping effectiveness will enhance the potential utility of our retention model by suggesting additional intervention content. Failure to include such health-related constructs would, we believe, unnecessarily impoverish our model.

Need to Incorporate Moderators/Boundary Conditions on Theoretical Relationships

As implied at various points above, any model of Army officer retention will have to incorporate moderator variables that specify conditions under which certain key theoretical relationships will and will not hold. Specification of boundary conditions is generally regarded as an important characteristic of any good theory (e.g., Campbell, 1990). Moreover, it may produce important predictions about when certain interventions will and will not be effective.

Need to Incorporate Job Embeddedness

The construct of job embeddedness has received a great deal of recent attention in the turnover literature (Crossley, Bennett, Jex, & Burnfield, 2007; Holtom & Interrieden, 2006; Holtom, Mitchell, & Lee, 2006; Hom et al., 2009; Lee, Mitchell, Sablynski, Burton, & Holtom, 2004). Mitchell, Holtom, Lee, Sablynski, and Erez (2001) defined job embeddedness as a broad constellation of factors that influence employee retention by enmeshing the employee in the organization and the community. Mitchell et al. defined three dimensions of job embeddedness: (a) links, (b) fit, and (c) sacrifice. *Links* are formal or informal connections between a person and other people or institutions. Employees and their families are connected in a social, psychological, and financial web including work and nonwork friends, groups, community, and location. *Fit* is defined as an employee's perceived compatibility with the job, organization, and community. This includes compatibility of personal values, career goals, and future plans with the organizational culture and job demands, as well as compatibility with the community and location. *Sacrifice* reflects the cost of what people have to give up if they leave the job, in terms of both material and psychological benefits. A key aspect of job embeddedness is the focus on both the organization and the community, recognizing that links to the community can make it difficult to leave a job despite a lack of commitment.

Job embeddedness has been shown to predict voluntary turnover and intentions to leave above and beyond job satisfaction and organizational commitment (Crossley et al., 2007; Holtom & Interrieden, 2006; Mitchell et al., 2001). It has also been shown to mediate the relationship between improvement in employee-organization relationships and turnover intention (Hom et al., 2009). Job embeddedness is certainly an important construct for understanding retention in the Army because the organization and the community are very strongly linked for Army personnel. Therefore, we ensured that our model was compatible with the concept of job embeddedness. Rather than considering the impact of the broad construct on retention, however, it was necessary to split job embeddedness into its three dimensions and even more specific variables within each dimension to adequately describe the Army officer career continuance process.

In our taxonomic model, links are represented by several variables. We include a number of person variables that are related to the development of links. For example, Abelson (1987) found that age, marital status, tenure, and having children were related to likelihood of staying. We also include a "links to community" construct that includes variables such as home ownership,

community organization involvement, non-work friends in the community, and spouse's job. Unit cohesion is another construct that should be related to links. This is the extent to which individuals in a unit are bonded together in such a way as to sustain their will and commitment to each other, the unit, and mission accomplishment, despite combat or mission stress. We believe it follows that the more cohesive a unit is, the stronger the links will be between an officer and others in the unit, the unit itself, and mission accomplishment. Another construct that we believe helps create links is work group attachment. This is the extent to which an officer (a) experiences feelings of warmth and security due to group acceptance versus anxiety/shame when acceptance is doubtful or denied, and (b) is open to giving and receiving emotional support from the group versus generally avoiding group members.

We represented the different types of fit with three different constructs. Army-consistent personality, values, and identity is a person variable that represents fit with the organization as defined by Mitchell et al. (2001). We also included perceived fit with the community to represent person-community fit. This is the perceived compatibility or comfort an officer and his/her family has with different aspects of the community and the surrounding environment (e.g., weather, entertainment activities, political climate, religious climate, city size, quality of schools).

We also see organizational identity, which we call Army identity salience in our taxonomy, as capturing some aspects of what Mitchell et al. (2001) called fit. Organizational identity is defined as the extent to which an individual perceives a oneness with the organization, seeing the successes and failures of the organization as one's own (Mael & Ashforth, 1992). Specific to the Army, we define Army identity salience as the extent to which an individual's identity as an Army officer is salient to his or her overall identity. Mitchell et al. say organizational identity is fundamentally different from fit to organization because identity is a broader and deeper idea. They see fit as assessing degree of similarity on a few specific dimensions. We believe that experiencing close fit on a number of specific dimensions will lead to a high identity salience, so the constructs are related but at a different level.

We see Mitchell et al.'s (2001) concept of sacrifice to be covered by the investments aspect of continuance commitment, which is referred to as sacrifice by McGee and Ford (1987) and Jaros (1997). Mitchell et al. see their construct of sacrifice as being more specific than the investments construct as measured by Rusbult and Farrell (1983), and we agree. Thus, when measuring investments, we recommend measuring specific factors an officer would have to give up by leaving rather than the more general items used by Rusbult and Farrell or McGee and Ford.

Formulation of Model

Prior to formulating our model of officer retention, we developed a taxonomy of relevant constructs. We subsequently incorporated the constructs in the taxonomy into a dynamic process model of officer retention. We describe each of these efforts in turn.

Development of Taxonomy

The taxonomy described in this report was derived from several sources. We conducted a review of literature relevant to the Army, the military, and organizations in general, with an emphasis on large-scale studies. Variables showing practically significant empirical relationships with retention or likely antecedents of retention were extracted, as were variables that, in our professional judgment, were likely to be related to retention or its antecedents. In addition, a series of focus groups and interviews were conducted during the spring and summer of 2006 with officers ranging from O-1 to O-6 at Forts Bragg, Hood, Riley, and Lewis.

We listed all variables and behaviors that focus group and interview participants indicated were related to retention decisions. We eliminated redundancies and sorted the characteristics/behaviors into groups based on content similarity. The taxonomy derived from this sorting task was then integrated with constructs derived from the literature review.

We sought to integrate constructs with empirical support from the literature with information obtained from focus groups and interviews so that literature-based constructs would be appropriately contextualized to the Army. At the same time, we avoided major changes in the definitions of these constructs so the empirical relationships with retention described in the literature would not be vitiated. In all cases, we sought to provide definitions that would provide unambiguous roadmaps for operationally defining the constructs.

Description of Taxonomy

Retention factors most distal to retention decisions have been categorized into person variables and context variables. Examples of *person variables* are military family background, reason for joining the Army, marital status, pre-commissioning source, various individual difference variables (e.g., personality, values, physical fitness at the time of accession), expectations about Army life, number of dependents, and health at the time of accession. Person variables and their definitions are shown in Table 1.

Context variables relate to the context in which an officer experiences Army life. These have been classified into several construct categories, such as work characteristics, unit context, leadership/command climate, organizational context, professional/career development, family satisfaction/support, and extra-military context. Context variables are characteristics of work and non-work environments in which officers must function. While subject to interpretation, they are all, in principle, capable of being measured objectively (though such objectivity may involve a consensus of subjective opinions; e.g., regarding unit cohesion).

Table 1.
Person Variables and their Definitions

Variable	Definition
From military family?	Whether one or both of an officer's parents, or other close relatives, were in the military during that officer's formative years
Marital status	Whether an officer is single, married, divorced, or widowed
Reason for joining Army	The reason an officer joined the Army (e.g., as a stepping stone to a non-military career, with a long-term military career in mind, for career exploration purposes)
Pre-commissioning source	Whether an officer's pre-commissioning training was conducted at the United States Military Academy; Officer Candidate School; Reserve Officer Training Corps; or another source, resulting in a direct appointment
Retention plans at time of entry	Whether an officer intends to stay or leave upon completion of first ADSO, either in general or based on certain contingencies (e.g., if marital status changes)
Army-consistent personality, values, and identity	The extent to which an officer's values are consistent with the Army's values; the extent to which an officer's personality profile matches the personality requirements for success as an Army officer (including fitting in with other officers)
Physical fitness	The level of physical fitness an officer possesses, as measured by standardized Army physical fitness tests.
Number of dependents	The number of dependents for which an officer is legally responsible
Expectations regarding Army life/culture/career	The set of expectations an officer has regarding Army life, culture, and career at the time of commissioning (e.g., regarding the effect of Army life on family, career development opportunities, relationships with commanding officers)
Health problems at entry	Physical or mental health problems an officer has at time of commissioning
Links to community	Formal or informal connections between an officer or an officer's family and the non-work community, such as home ownership, community organization involvement (e.g., church, school, volunteer group), non-work friends, or spouse's job.

Most context variables, however, differ in the extent to which they are accurately perceived by officers operating within that context. We therefore created a separate but related set of variables, labeled perceived context. *Perceived context* variables are defined very similarly to their associated context variables, with the difference that their definitions involve officers' *perceptions* of a particular context variable. For example, an officer may have perceptions about the degree of career development support provided by the Army that are incongruent with the career development support that is actually available. It may be, for instance, that an officer is not aware of certain career development tools that are available, resulting in a misperception. Perceived context is the result of the accumulation of experiences in an officer's life and how those experiences are interpreted.

The names, definitions, and construct categories of the context variables and perceived context variables in our model are shown in Table 2. Perceived context variables are paired with

their associated context variables to make the relationship between these two categories of variables clear. There is a perceived context variable associated with nearly every context variable. The exception is peacetime vs. wartime, because we believe the definition of this construct is sufficiently objective that perception would not play a role.

Table 2. Context Variables, Perceived Context Variables, and their Definitions

Context variables		Perceived context variables	
Construct	Definition	Construct	Definition
Work Characteristics			
Job duties	The duties an officer is required to perform in his or her present job	Job involvement	The extent to which an officer is engaged in performing the duties required by his or her present job; the extent to which work plays an important role in an officer's life
Work tempo	The extent to which an officer's role imposes frequent strict deadlines; the length of deployments and off-post training; the amount of recovery time after deployments and off-post training assignments	Reaction to work tempo	The extent to which the work tempo causes stress in an officer's life
Role conflict	Having two or more sets of work requirements that are incompatible (i.e., satisfying one set of requirements makes it difficult to satisfy other sets of requirements	Perceived role conflict	The extent to which an officer believes he or she has two or more sets of work requirements that are incompatible
Role ambiguity	The potential amount of uncertainty or lack of clarity inherent in an officer's role	Perceived role ambiguity	The perceived amount of uncertainty or lack of clarity an officer experiences regarding what he or she is supposed to do to perform a role
Adequacy of resources	The extent to which an officer has sufficient human and other resources (e.g., equipment, tools) to be effective in his/her role	Perceived adequacy of resources	The extent to which an officer believes he/she has sufficient human and other resources (e.g., equipment, tools) to be effective in his/her role
Deployment-related stressors	Stressors inherent in an officer's role while deployed	Deployment-related strain	The extent to which an officer feels strain due to deployment-related stressors

Table 2. Context Variables, Perceived Context Variables, and their Definitions (continued)

Context variables		Perceived context variables	
Construct	Definition	Construct	Definition
Pay/benefits	Officers' salaries (including money received beyond base salary, such as imminent danger pay); and benefits with monetary value (e.g., pensions, insurance, paid leave, bonuses)	Perceived pay/benefits	The amount of salary and benefits an officer believes he/she is earning
Unit context			
Unit cohesion	The bonding together of Soldiers in such a way as to sustain their will and commitment to each other, the unit, and mission accomplishment, despite combat or mission stress	Perceived unit cohesion	The extent to which an officer believes that individuals in his/her unit are bonded together in such a way as to sustain their will and commitment to each other, the unit, and mission accomplishment, despite combat or mission stress
Unit self-efficacy	A unit's shared belief in the collective capabilities of its members to organize and execute courses of action required to perform its tasks and complete its missions	Perceived unit self-efficacy	Officers' perceptions of their unit's shared belief in the collective capabilities of its members to organize and execute courses of action required to perform its tasks and complete its missions
Work group characteristics	Demographic and personal characteristics of the members of an officer's work group	Work group attachment	The extent to which an officer (1) experiences feelings of warmth and security due to group acceptance versus anxiety/shame when acceptance is doubtful or denied, and (2) is open to giving and receiving emotional support from the group versus generally avoiding group members

Table 2. Context Variables, Perceived Context Variables, and their Definitions (continued)

Context variables		Perceived context variables	
Construct	Definition	Construct	Definition
Unit morale	The enthusiasm and persistence with which unit members engage in the prescribed activities of the unit	Perceived unit morale	An officer's perception of the amount of enthusiasm and persistence with which unit members engage in the prescribed activities of the unit
Leadership/command climate			
Prioritization/ delegation quality	The extent to which the leader: (a) accurately prioritizes tasks delegated to subordinate officers; (b) ensures that officers are not required to work excessive hours to finish relatively unimportant tasks that could wait; and (c) empowers subordinate officers by allowing them to make decisions independently as appropriate (i.e., refrains from micromanaging)	Perceived prioritization/ delegation quality	The extent to which an officer believes that his/her leader: (a) accurately prioritizes tasks delegated to subordinate officers; (b) ensures that officers are not required to work excessive hours to finish relatively unimportant tasks that could wait; and (c) empowers subordinate officers by allowing them to make decisions independently as appropriate (i.e., refrains from micromanaging)
Mentoring/counseling quality	The effectiveness with which a leader (or other designated individual) engages in behaviors that help the subordinate officer adapt to, and thrive in, his/her present role and Army career; the extent to which a leader focuses on influencing subordinate officers to remain in the Army beyond the first ADSO when appropriate	Perceived mentoring/counseling quality	The extent to which an officer believes that he or she has benefited from mentoring and/or counseling from a leader (or other designated individual)

Table 2. Context Variables, Perceived Context Variables, and their Definitions (continued)

Context variables		Perceived context variables	
Construct	Definition	Construct	Definition
Work climate	The extent to which leaders: (a) demonstrate and facilitate mutual respect and support among unit personnel; (b) provide psychological rewards for good performance; (c) make officers feel important and valued; (d) infuse work with a sense of fun and meaningfulness; (e) get to know their subordinate officers and their families; (f) establish and maintain good working relationships with their subordinate officers; (g) limit the need for excessive work hours and provide time off when reasonable and/or necessary; and (h) focus on addressing the needs and careers of their subordinate officers versus focusing primarily on advancing their own careers	Perceived work climate	The extent to which an officer believes that leaders: (a) demonstrate and facilitate mutual respect and support among unit personnel; (b) provide psychological rewards for good performance; (c) make officers feel important and valued; (d) infuse work with a sense of fun and meaningfulness; (e) get to know their subordinate officers and their families; (f) establish and maintain good working relationships with their subordinate officers (including the officer him/herself); (g) limit the need for excessive work hours and provide time off when reasonable and/or necessary; and (h) focus on addressing the needs and careers of their subordinate officers versus focusing primarily on advancing their own careers
Transformational leadership style	The extent to which the leader changes the cohesion and productivity of his/her unit by (a) communicating a culture-changing vision to subordinates, (b) developing commitment to that vision, and (c) implementing strategies to actualize that vision	Perceived transformational leadership style	The extent to which an officer believes that the leader changes the cohesion and productivity of the unit by: (a) communicating a culture-changing vision, (b) developing commitment to that vision, and (c) implementing strategies to actualize that vision

Table 2. Context Variables, Perceived Context Variables, and their Definitions (continued)

Context variables		Perceived context variables	
Construct	Definition	Construct	Definition
Organizational context			
Predictability	The extent to which advance notice of assignments, off-post training, and deployments is provided	Perceived predictability	The extent to which officers believe they are provided with adequate advance notice of assignments, off-post training, and deployments
Bureaucratic organizational structure	The number of procedures and regulations and amount of paperwork resulting from those procedures and regulations	Perceived organizational bureaucracy	The extent to which an officer perceives that he/she must follow an excessive. number of procedures and regulations, and complete excessive amounts of paperwork resulting from those procedures and regulations
Communication quality	The extent to which officers receive accurate and timely information important to their job and career success through the Army chain of command	Perceived communication quality	The extent to which an officer believes that he/she receives accurate and timely information important to his/her job and career success through the Army chain of command
Opportunity to choose post/unit	The extent to which officers are free to choose their post and/or unit	Perceived opportunity to choose post/unit	The extent to which an officer believes that he/she is free to choose his/her post and/or unit
Organizational Justice Climate			
Distribution of desired Outcomes	The manner in which desired outcomes such as deployments and advancement opportunities are distributed	Perceived distributive justice	The extent to which an officer believes that desired outcomes such as deployments and advancement opportunities are distributed fairly

Table 2. Context Variables, Perceived Context Variables, and their Definitions (continued)

Context variables		Perceived context variables	
Construct	Definition	Construct	Definition
Distribution procedures	The process used to determine the amount and distribution of resources among officers, and to make decisions that affect officers, such as those concerning deployments and advancement opportunities	Perceived procedural justice	The extent to which an officer believes that the process used to determine the amount and distribution of resources among officers, and to make decisions that affect officers, is fair.
Interpersonal treatment during distribution decisions	The quality of interpersonal treatment of officers by their superiors (e.g., respect, dignity) during processes used to make decisions affecting distribution of desired resources and other work outcomes	Perceived interactional justice	The extent to which an officer believes that he/she is treated with respect and dignity by his/her superiors during processes used to make decisions affecting distribution of desired resources and other work outcomes
Professional/Career Development			
Educational/training/ developmental opportunities	The extent to which officers are provided with the opportunity to acquire new knowledge and skills through (a) educational opportunities, (b) Army training programs that will enhance their careers, or (c) developmental assignments	Perceived educational/training/ developmental opportunities	The extent to which an officer believes he/she is provided with the opportunity to acquire new knowledge and skills through (a) educational opportunities, (b) Army training programs that will enhance his/her career, or (c) developmental assignments
Career advancement opportunities	The rate at which officers are promoted (i.e., the length of time between promotions); the extent to which officers receive platoon and company command opportunities of appropriate duration at appropriate times in their Army careers	Perceived career advancement opportunities	The extent to which an officer believes he/she is receiving platoon and company command opportunities of appropriate duration at appropriate times in his/her Army career

Table 2. Context Variables, Perceived Context Variables, and their Definitions (continued)

Context variables		Perceived context variables	
Construct	Definition	Construct	Definition
Career development support	The extent to which the Army provides officers with career development tools and guidance.	Perceived career development support	The extent to which an officer believes that the Army is providing him/her with adequate career development tools and guidance
Family satisfaction/support			
Spouse satisfaction	The extent to which officers' spouses are satisfied with Army life as it relates to (a) the spouses themselves (e.g., the spouse's career opportunities), (b) their children, and (c) their marriage; extent to which spouses are supportive of the officers' Army careers	Perceived spouse satisfaction	The extent to which an officer believes that his/her spouse is satisfied with Army life as it relates to (a) the spouse him/herself, (b) their children, and (c) their marriage; the extent to which an officer believes that his/her spouse is supportive of his/her Army career
Family support/benefits	The extent to which the Army provides benefits that are instrumental to the overall well-being of officers' families	Perceived family support/benefits	The extent to which the Army is perceived as providing benefits that are instrumental to the overall well-being of an officer's family
Work-family conflict	The extent to which effectively performing their work roles makes it difficult for officers to meet their family responsibilities; includes both work-family spillover and family-work spillover	Perceived work-family conflict	The extent to which an officer believes that effectively performing his/her work role makes it difficult to meet family responsibilities; includes both work-family spillover and family-work spillover

Table 2. Context Variables, Perceived Context Variables, and their Definitions (continued)

Context variables		Perceived context variables	
Construct	Definition	Construct	Definition
Extra-Army context			
Aspects of the community	Unique aspects of the community in which the officer lives, such as weather, available entertainment activities, political climate, religious climate, city size, quality of schools and geographic location.	Perceived fit with community	The perceived compatibility or comfort an officer and his/her family has with different aspects of the community and surrounding environment.
National Army prestige/support	The extent to which the United States government and public provide material and moral support to the Army, and hold the Army in high esteem	Perceived national Army prestige/support	The extent to which an officer believes that the United States government and public are providing material and moral support to the Army, and hold the Army in high esteem
Peacetime versus wartime	Whether a state of war exists between the United States and one or more other countries/entities		

Another category of variables in our model is context evaluation variables. *Context evaluation* variables consist of (a) broad attitude variables, such as job satisfaction and perceived organizational support; and (b) Army identity salience. The broad attitude variables are overall evaluations an officer arrives at on the basis of the specific experiences that make up the perceived context variables. For example, an officer's level of job satisfaction is determined by implicitly weighting and combining his or her satisfaction with specific aspects of the job such as the leader, training, work climate, and work tempo. Army identity salience is primarily a result of person variables in combination with specific experiences. Names and definitions of the context evaluation variables are shown in Table 3.

Table 3.
Context Evaluation Variables and their Definitions

Perceived organizational support	Officers' beliefs about the extent to which the Army values their contributions and cares about their well-being
Job satisfaction	The extent to which officers are satisfied with their work roles, including factors such as work tasks, pace, pay and benefits, leadership, and level of responsibility
Perceived family satisfaction/ support	The extent to which officers believe that the Army is supportive of families and is doing what it can to minimize work/family conflict (e.g., by supporting spouse careers, providing healthcare and other benefits, limiting PCSs, limiting excessive work hours, increasing the dwell-time between deployments)
Perceived career satisfaction/ career support	The extent to which officers believe that the Army is taking steps to help them identify and achieve their career goals
Overall fit with the community	The extent to which officers feel compatible or comfortable with the community and surrounding environment.
Army identity salience	The extent to which an individual's identity as an Army officer is salient to his or her overall identity

Another category of variables in our model is critical events. The basic concept of a critical event was described above, and an illustrative list of possible critical events is shown in Table 4. This list is based on information gathered during the focus groups and interviews with officers, the research literature, and our professional judgment about likely critical events. Note that these critical events span a wide variety of domains, including deployment, family issues, career issues, leadership issues, and job alternatives.

Table 4.
Illustrative List of Critical Events

Pregnancy
Marriage
Being deployed when child was born
Divorce
Threat of divorce/marital problems
Being informed by spouse that s/he hates Army life
Realization that better career opportunities exist in civilian sector (e.g., consults with headhunter)
Job offer by headhunter
Economy improves drastically, increasing number of well-paying jobs (or declines drastically, decreasing the number of available job opportunities in the civilian sector)
One or more respected persons in the unit decides to leave
Unfair severe punishment by commanding officer
Unexpected poor OER
Broken promise by commanding officer
Sudden, unexpected deployment
Being sent on another deployment without sufficient recovery time in garrison
Deployment extended with little or no notice
Close friend killed in combat
Failure to get company command early enough in career
Blocked from desired career course or functional area school
Educational opportunity cancelled due to demands of life cycle
Passed over for promotion
Successive assignment to staff positions
Being informed by commanding officer that officer has “no leadership potential”
Officer develops serious health problem (e.g., PTSD, severe battle wound)
Family member develops serious health problem
Death of a loved one

Description of Dynamic Process Model

The dynamic process model described in this report was formulated as follows. First, we examined extant research (with an emphasis on large-scale studies) to determine the magnitude of the empirical relationships between (a) constructs in our taxonomy, and (b) retention and its antecedent variables. Second, we examined structural equation models in the literature to suggest a reasonable structure for the constructs (e.g., identifying mediators and moderators). Third, we determined those parts of the enlisted attrition model that are relevant to the officer retention model and integrated our model with those aspects of the enlisted model. We formulated the model in a way that addresses the needs of this project and integrates rational considerations with empirical data. The model that we ultimately developed was, therefore, a blend of the best available empirical research, the innovative conceptualization underlying the enlisted attrition model, and our professional judgment of how to make the model maximally responsive to project requirements.

Our dynamic process model is shown in Figure 1. In the sections that follow, we describe the relationships between the components of the model, and the basis for hypothesized relationships. We also refer to implications for interventions implicit in various relationships, both those already developed and implemented and those that might be done in the future.

Variables included in model boxes should not be interpreted as internally consistent constructs, but only as a group of variables linked taxonomically. Because of the large number of antecedents of retention decisions, developing a sufficiently parsimonious model required us to group variables in this way. As such, hypothesized linkages may not always apply to every variable in a construct category, though such linkages should apply to most if not all variables within categories. Hypotheses involving specific variables within construct categories will be necessary to evaluate most facets of the model. We indicate throughout this report what some of those more specific relationships might be, though it is obviously impossible to specify hypotheses for every permutation of variable interrelationships.

Antecedents of Commitment

We begin the discussion of our model with a description of the antecedents of commitment. The path to commitment begins with the person and context variables listed in Tables 1 and 2. The relationship between context variables and perceived context variables has already been described. The argument that context variables exert direct causal influence on perceived context variables is straightforward. Put succinctly, there must be an “objective” context variable about which to form perceptions. For example, one cannot form a perception about one’s work climate unless a work climate exists. We do not expect anything to mediate the relationships between contextual and perceived context variables, but these relationships are likely to be moderated by certain variables.

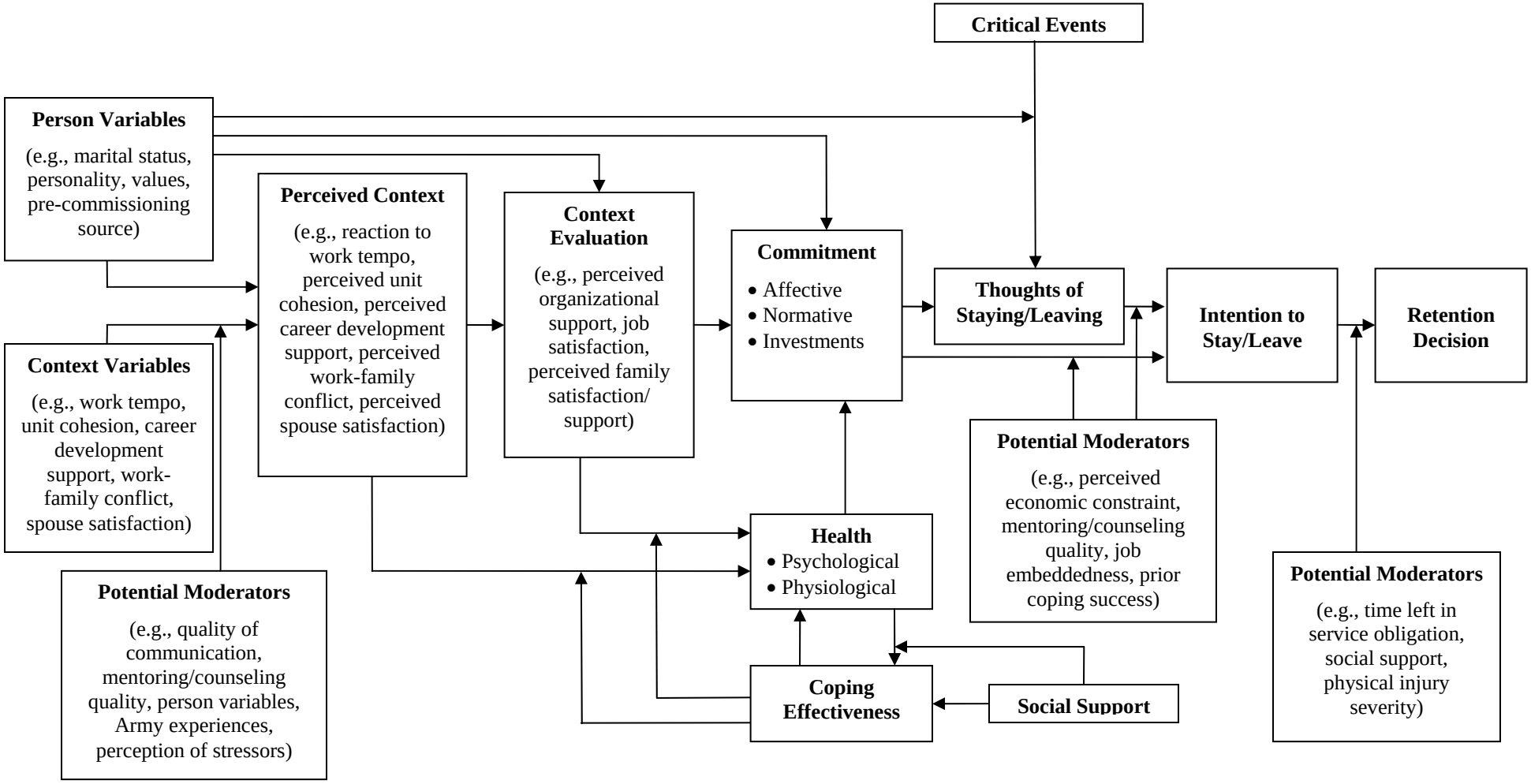

Figure 1. Model of Company Grade Officer Career Continuance.

One likely type of moderator effect involves personal characteristics. For example, an officer's perception of deployment-related stressors is likely to be moderated by his or her (a) ability to tolerate stress and (b) resilience. Another important way that the relationship between context and perceived context variables is likely to be moderated involves communication quality. It is likely that many inaccurate perceptions on the part of officers are a result of inadequate communication. This could be at the organizational level, the unit level, or the individual level (e.g., during counseling sessions). For example, an officer may have misperceptions about the degree of career development support that is actually available because individuals in his or her unit have not been informed about career development tools that are available.

Mentoring/counseling quality was identified as another likely moderator. For example, counseling may make an officer aware of career advancement opportunities and paths of which he or she was previously unaware. Another likely moderator of the context-perceived context relationship is Army experiences accumulated by the officer. For example, an officer's perception of deployment-related stress will almost certainly be affected by the number of times that officer has been deployed, as well as his or her experiences during those previous deployments.

Most of the context variables are stressors. Podsakoff, LePine, and LePine (2007) noted, however, that some kinds of stressors are generally perceived differently than other kinds of stressors by most people. Specifically, they distinguished *challenge-related stressors*, which involve job demands such as job scope and responsibility, time pressure, and workload, from *hindrance-related stressors*, which involve situational constraints, hassles, role ambiguity, role conflict, organizational politics, inadequate resources, and concerns about job security. Podsakoff et al. conducted a meta-analysis in which they found very different patterns of correlations between stressors and other variables, depending on whether the stressor was classified as hindrance or challenge. For example, hindrance-related stressors correlated ρ = -.57 (k = 81, n = 20,943) with job satisfaction, whereas challenge-related stressors correlated ρ = -.02 (k = 18, n = 5,052) with job satisfaction. The same pattern of correlations was found between these two types of stressors and organizational commitment. Leader behavior may influence the extent to which officers appraise stressful job demands as challenge-related or hindrance-related: "... leaders who set goals that stretch employees' abilities but also provide the coaching and development necessary to reach those goals should increase employees' perceptions that work demands reflect challenges rather than hindrances" (Podsakoff et al., 2007, p. 448).

Moderator effects such as these suggested potentially effective interventions. For example, a moderator effect involving communication quality suggested that enhancing the quality of communication that flows to junior Army officers, as in the Web site developed for ARI by Hezlett, Johnson, and Babin (2009) and retention counseling training developed for ARI by Johnson et al. (2009) would be useful. Moderator effects involving mentoring/counseling quality and perception of stressors as challenge- versus hindrance-related also support the usefulness of implementing counseling training.

Figure 1 also shows that person variables exert a direct effect on perceived context variables. Many studies have shown relationships between personality variables and job attitudes (e.g., Judge & Bono, 2001; Judge, Higgins, Thoresen, & Barrick, 1999). For example, research

indicates that there are genetic influences on job satisfaction, probably mediated by personality (e.g., Ilies & Judge, 2003). A reasonable inference from this research is that certain personality traits (e.g., positive or negative affectivity) may lead people to form more positive or negative perceptions of their environment, independent of their actual situation. For instance, Podsakoff et al. (2007) suggest that individuals high in neuroticism are more likely to appraise stressors as hindrances and thereby perceive their work context more negatively than those low in neuroticism.

Because it is perceptions that are evaluated to form context evaluations, it is logical that perceived context variables directly determine context evaluation variables. Person variables do not have associated perception variables, so it is also logical that person variables would directly determine those context evaluation variables to which they are theoretically related.

As an example, job satisfaction will likely emerge from a number of perceived context variables, including perceived interactional justice, perceived work climate, perceived role conflict, deployment-related strain, and several others; as well as certain person variables (e.g., personality variables; Judge, Heller, & Mount, 2002). We also expect that Army identity salience will be determined by a combination of various perceived context variables and person variables. Army identity salience – the relative importance of being an Army officer to an officer's overall self-concept – will likely emerge from variables such as Army-congruent values/identity at the time of commissioning and the extent to which an officer has positive perceptions of the context in which he/she lives and works while in the Army. Many perceived context variables should exert socializing influences that serve to modify an officer's self-concept such that the Army plays a more central role (e.g., perceived unit cohesion, work group attachment, perceived work climate).

Context evaluation is posited to have a direct effect on commitment to the Army. There is a sound rational and/or empirical basis for every one of the context evaluation variables to relate to one or more commitment variables. Perceived organizational support has been shown to relate positively to both affective and normative commitment (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Rhoades, Eisenberger, & Armeli, 2001), as well as to personal investments, a facet of continuance commitment (Gibson & Tremble, 2006). Job satisfaction has been shown to relate to both affective and normative commitment (Meyer et al., 2002). Variables related to perceived family satisfaction/support have been shown to relate to affective and continuance commitment (Gibson & Tremble, 2006; Meyer et al., 2002). Variables similar to perceived career satisfaction/career support were related to retention intentions in a sample of 1,169 active duty junior Army officers drawn primarily from the 1999 DOD survey of active duty personnel (Gencer, 2002). Job embeddedness, which includes fit with the community, has been shown to mediate the relationship between context variables and affective commitment (Hom et al., 2009). Finally, Army identity salience should relate to normative and affective commitment, though this hypothesis has not been tested to our knowledge. Nevertheless, this variable, which reflects acceptance of Army values, would seem to reflect a desire to remain in the Army (affective commitment), as well as a sense of obligation (normative commitment) to the Army.

The link between person variables and commitment variables is based on several observations. First, personality characteristics (e.g., locus of control) have been empirically linked to commitment variables (Meyer et al., 2002). Similarly, possessing Army-consistent

values is likely to enhance commitment. Though defining what is meant by "values" has been challenging, "there is agreement of sorts that values function as the standards, or criteria, by which persons evaluate things and that such evaluation is on the basis of the relative importance of things to the person" (Dawis, 1991, p. 838). It seems extremely likely that possessing Army-consistent values (e.g., patriotism, sense of duty) would foster a sense of commitment, especially normative commitment.

There is also support for mediation of the perceived context-commitment relationship by context evaluation variables. For example, Rhoades et al. (2001) found that perceived organizational support mediated the relationship between (a) organizational rewards, procedural justice, and supervisor support, on the one hand; and (b) affective commitment, on the other hand, in a sample of 367 university alumni working in a variety of positions. Wilcove, Schwerin, and Wolosin (2003) found that two constructs, personal factors and job factors, each mediated the relationship between more specific variables that drive them (e.g., satisfaction with marriage/intimate relationship for the personal factors variable; and satisfaction with professional development/job for the job factors variable) and organizational commitment in several samples of enlisted Navy personnel.

The Role of Health in the Model

We recognize that the examination of medical outcomes are beyond the scope of ARI's mission, and have included the role of health in this model solely for purposes of completeness. Perceived context and context evaluation are hypothesized to directly influence psychological and physiological health. Lee and Ashforth (1996) conducted a meta-analysis in which they investigated correlations between dimensions of burnout (an aspect of psychological health) and a wide array of variables. Variables showing relationships with burnout included role clarity, role conflict, role stress, stressful events, workload, work pressure, supervisor support, family resources, and opportunities to utilize skills, all of which fall within the perceived context category. Day and Livingstone (2001) reported significant correlations between $r = .19$ and .28 ($p < .01$) between health symptoms and perceived context variables (lack of job stimulation, ambiguity, and overload). Grandey and Cropanzano (1999) reported correlations ranging from $r = .27$ to .43 (all $p < .05$) between (a) the perceived context variables work role stress, family role stress, work-family conflict, and family-work conflict; and (b) poor physical health in a sample of 132 University faculty. Posig and Kickul (2003) reported correlations between the perceived context variables work involvement, role conflict, role overload, participation, role ambiguity, and career progress opportunities and facets of burnout (especially emotional exhaustion and depersonalization) in a sample of 165 full-time and part-time employees in business organizations. In a sample of Israeli employees, burnout was highly correlated with both depression and anxiety, two other indicators of poor psychological health, in a sample of 933 males and 630 females (Toker, Shirom, Shapira, Berliner, & Melamed, 2005). Given the correlations between perceived context variables and burnout, and the high correlation between burnout and depression/anxiety, links from perceived context variables to depression and anxiety are reasonable to infer.

Research summarized by Melamed et al. (2006) links burnout to cardiovascular disease (even after controlling for other major risk factors such as age, body mass index, smoking, blood pressure, and lipid levels), myocardial infarction, and inflammation abnormalities resulting in

reduced immunity. Much of this research is longitudinal, making causal inference possible. Links between perceived context variables and burnout, coupled with links from burnout to compromised cardiovascular and immunity systems, suggest a link from perceived context variables to compromised cardiovascular- and immunity-related health.

The link from context evaluation to health is based on both rational and empirical considerations. From a rational standpoint, context evaluation should relate to health because it derives from perceived context, which has been shown to relate to health. We include direct links from both perceived context and context evaluation to health because most of the variables linked to health are perceived context variables, not all of which may be considered when officers form context evaluations. There is also some empirical support for the direct link from context evaluation to health. For example, Lee and Ashforth (1996) reported corrected meta-analytic correlations of ρ = -.31 and -.44, between job satisfaction (a context evaluation variable) and (a) emotional exhaustion and (b) depersonalization, respectively (k = 17 and 12, n = 4,000 and 2,102).

There is also support for the hypothesized relationship between health and commitment. For example, Lee and Ashforth (1996) reported corrected meta-analytic correlations of ρ = -.43 and -.42, respectively, between organizational commitment and (a) emotional exhaustion and (b) depersonalization, respectively (k = 7, n = 2,078 in both cases). Tay (2008) administered measures of burnout and commitment to 223 employees in banking and finance, information technology, retail, and nursing occupations. Not surprisingly, the emotional exhaustion and depersonalization facets of burnout correlated most highly with affective commitment (rs = -.48 and -.36, both p <.01). The personal inefficacy facet of burnout had modest, but significant, relationships with affective and normative commitment (r = -.23 and -.24, both p <.01), but was not significantly correlated with continuance commitment. Only depersonalization correlated significantly with continuance commitment (r = -.18, p <.01).

Figure 1 also shows a bidirectional relationship between health and effective coping. Research has shown that the extent to which one copes effectively with stressors is a function of self-efficacy and certain specific coping styles (Jex, Bliese, Buzzle, & Primeau, 2001). A number of different styles have been identified. *Problem-solving coping* involves reduction of strain by establishing specific goals and engaging in problem-solving behavior designed to attain those goals. *Emotion-focused coping* involves efforts to reduce strain without affecting stressors and includes reappraising situations, receiving reassurance from friends, and focusing on personal strengths. *Avoidance coping* involves not thinking about, or denying the existence of, stressors; engaging in behaviors designed to distract oneself from the stressors; self-medicating; or removing oneself from stressful situations.

Lee and Ashforth (1996) reported that “active coping” (essentially problem-solving coping) was correlated with three facets of burnout (emotional exhaustion, depersonalization, and personal accomplishment; ρ = -.30, -.28, and .52, respectively). Park and Adler (2003) describe a longitudinal study of 139 first-year medical students in which they found that (a) avoidance coping strategies correlated negatively with physical health, and (b) cognitive reappraisal coping strategies correlated positively with psychological health. Kammeyer-Mueller, Judge, and Scott (2009) conducted a meta-analysis in which they found that avoidance coping correlated negatively with core self-evaluation (an indicator of positive psychological health; ρ = .23, k =

34, n = 6,867). Collectively, these data provide support for the relationship between effective coping and health in Figure 1.

With regard to the hypothesized bidirectional relationship between health and effective coping, consider the following example involving burnout: We would expect increases in burnout to result in decreases in one's ability to cope effectively with stressors, largely due to increased fatigue. In turn, we would expect increased fatigue to result in decreases in ability to cope, which would further increase burnout due to increased stress and likely decreased performance. This hypothesized bidirectional scenario causes both variables to decrease (or increase) in tandem.

Finally, we would expect coping effectiveness to moderate the hypothesized paths from perceived context to health, and from context evaluation to health. Most of the perceived context variables are potential stressors (e.g., reaction to work tempo, perceived role conflict, perceived role ambiguity, perceived prioritization/delegation quality). As such, more negative perceptions of one's work context translate into increased stress. The ability to effectively cope with that stress should buffer the direct effects of both perceived context and context evaluation on health, described above. That is, effective coping should reduce the correlation between stress (operationalized as perceived context and context evaluation variables) and strain (operationalized as health variables).

Social support is expected to have a direct effect on coping effectiveness, as well as a possible moderating effect on the relationship between coping effectiveness and health. *Social support* refers to social networks and the resources they provide for an individual or group. Two major schools of thought regarding social support are (a) that it has a direct effect on coping effectiveness, and (b) that it moderates the relationship between coping effectiveness and strain variables, such as health (Martin & Brantley, 2004). Note that (a) and (b) need not be mutually exclusive.

The Path from Commitment to Retention Behavior

Commitment is conceptualized as a relatively proximal determinant of the retention decision, but we hypothesize that the relationship between commitment and retention is mediated by two additional variables: (a) thoughts of staying/leaving and (b) intention to stay/leave. Support for this hypothesis is found in Hom, Caranikas-Walker, Prussia, and Griffeth (1992), in which the relationship between job satisfaction and turnover is mediated by thoughts of quitting and quit intention. This model was tested by inputting a meta-analytically generated correlation matrix into a structural equation model and computing model fit statistics. The fit statistics for the mediated model described above were excellent, and superior to alternative turnover models. This is also consistent with psychological models positing that the most proximal determinant of behavior is the intention to perform the behavior (e.g., Fishbein & Ajzen, 1975). On the basis of an empirical test of the model that we conducted (described later in this report), we propose that thoughts of staying/leaving is a partial mediator of the relationship between commitment and intention to stay/leave rather than a complete mediator.

Potential Moderators of the Relationship between Thoughts of Staying/Leaving and Intentions to Stay/Leave

There are several moderators of relationships between variables comprising the path from commitment to the retention decision. First, we believe that the perceived economic constraint facet of continuance commitment moderates the relationship between thoughts of staying/leaving and intention to stay/leave. More specifically, we believe that perceptions of constraint in this sense inhibit officers from taking overt action to translate their thoughts of leaving to actual intentions to leave upon completion of their first ADSO. This suggests that interventions designed to ensure that officers do not have unrealistically positive perceptions of alternatives in the civilian sector, or unrealistically low perceptions of the costs of abandoning an Army career, might be effective retention-enhancers. This observation is consistent with the intervention undertaken as part of this project in which Army alumni who left after their first ADSO described their post-Army experiences (Mael, Alonso, Johnson, & Babin, 2009).

Second, it is likely that mentoring/counseling quality will moderate the relationship between thoughts of staying/leaving and intention to stay/leave. For example, one would expect that a good leader could transform an officer thinking of leaving into one who intends to stay beyond the first ADSO by presenting information, correcting misperceptions, and describing a vision for a bright future in the Army for that officer. This observation is consistent with the retention counseling intervention undertaken as part of this project (Johnson et al., 2009).

Third, it is likely that job embeddedness will moderate the relationship between thoughts of staying/leaving and intention to stay/leave. Mitchell and Lee (2001) proposed a connection between shocks (i.e., critical events) and job embeddedness, suggesting that the level of job embeddedness moderates the relationship between shocks and turnover. In terms of our model, that would imply that the moderator comes between thoughts of staying/leaving and intention to stay/leave. The critical event would lead directly to thoughts of staying/leaving, but thoughts of leaving will only be translated into an intention to leave if the level of job embeddedness is sufficiently low. Holtom and Interrieden (2006) found that those who stayed with an organization had higher levels of job embeddedness than those who left the organization.

Finally, it is likely that prior coping success will moderate the relationship between thoughts of staying/leaving and intention to stay/leave. For example, one would expect that an officer with a lengthy record of prior coping successes who has been jarred into thinking about leaving due to a negative critical event would be less likely to translate those thoughts into intentions to leave than an officer who has had few coping successes.

Potential Moderators of the Relationship between Intentions to Stay/Leave and the Retention Decision

One would expect that time will moderate the relationship between intention to stay/leave and the retention decision. It seems likely that the closer an officer gets to completion of the first ADSO, the higher the correlation between intention and behavior. This is due to the fact that intention is a dynamic variable that fluctuates over time. As time progresses, the intention is likely to be strengthened due to the fact that officers have had an opportunity to acquire more information, become more socialized into Army life, and develop more deeply entrenched

attitudes regarding the retention decision. Also, there is less opportunity for moderators to influence the relationship between intention and behavior when the officer is near the end of the first ADSO and is close to being able to act on his or her intention.

We also hypothesize that social support will moderate the relationship between intention to stay/leave and the retention decision. Suppose, for example, that an officer who has always had a strong desire to serve in the military experiences a negative critical event such as a divorce. Suppose that, as a result of the divorce, the officer quickly forms an intention to leave upon completion of the first ADSO because he attributes the divorce to difficulties inherent in Army life. However, by talking the situation through with long-time friends and a trusted commanding officer (CO), the divorce could be put in a broader context by reminding the officer of his strong Army-consistent values, and the possibility of a strong, long-term marriage while serving in the Army (modeled by the trusted CO). This could cause the officer to change his intention from one of leaving to one of staying.

The Role of Critical Events in the Model

Earlier, we defined critical events as experiences that act as catalysts for rational thought processes relevant to making the retention decision. Critical events are interpreted in highly personal ways, however, such that two individuals may react to the same event differently. As such, moving from thoughts of staying/leaving to forming an intention to stay or leave implicitly involves an *appraisal* of the critical event. The outcome of this appraisal will make an officer (a) more likely, (b) neither more nor less likely, or (c) less likely to continue beyond his/her first ADSO. These three appraisals have been labeled *continuation*, *neutral*, and *discontinuation events*, respectively (Kammeyer-Mueller, Weinberg, Glomb, & Ahlberg, 2005). Critical events impact retention in two ways in our model. First, they directly influence thoughts of staying/leaving. Critical events are unlike other aspects of an officer's work context in that, by definition, they bypass perceived context, context evaluation, and commitment, instead directly producing cognitive activity regarding the retention decision (Lee, Mitchell, Holtom, McDaniel, & Hill, 1999). Second, certain kinds of critical events will directly influence person variables. For example, the birth of a child will change an officer’s number of dependents.

Person variables likely moderate the relationship between critical events and thoughts of staying/leaving. For example, it is likely that personality variables such as neuroticism and resilience (Ong, Bergeman, Bisconti, & Wallace, 2006) will determine how an officer reacts to certain critical events such as a deferred educational opportunity, an unexpected additional deployment, or a deployment-related psychological trauma. Ong et al. suggested that psychological resilience may be an enduring self-regulatory capacity to mobilize positive emotions to facilitate adjustment to acute stressors, such as critical events.

Two additional points about critical events should be made. First, critical events, while typically thought of as happening at a discrete point in time, could conceivably consist of one or more episodes that unfold over time. For example, the threat of divorce would likely consist of multiple episodes. Second, there may be some critical events that do not affect an officer's cognitive processes until a while after the events have played out. For example, in the wake of a severe trauma, psychological defenses may prevent an officer from thinking about those traumatic events for some period of time, resulting in a “sleeper effect.”

Both of these examples might at first seem inconsistent with the idea of critical events jarring someone into thinking about staying or leaving. We suggest that this seeming inconsistency can be resolved by observing that, for all critical events, there is a specific, discrete point in time when officers begin a process of thinking attentively, repetitively, and frequently about the decision of whether to stay or leave. This process will continue, on and off, until an intention is formed. The content of this process will vary depending on the nature of the event. If, for example, the critical event is traumatic, the content may involve making sense of the traumatic event, and seeking acceptance, recovery, and meaning. If the event creates a wish to leave that conflicts with high normative commitment, the content will involve resolution of this conflict. By contrast, if the event creates a sudden desire to stay that conflicts with plans to leave that have been in place since the time of accession, that conflict will have to be resolved. The cognitive process catalyzed by the critical event may be long or short. The key, however, is constructive, repetitive, goal-directed cognitive activity (Watkins, 2008) resulting from a critical event, which is initiated at some point during or after the occurrence of the critical event, and terminated once an intention is formed.

Role of Time in the Model

Ours is a dynamic retention model in which time plays a central role. It is challenging to accurately reflect the role of time in our model because time is so ubiquitous and its effects so varied. Time impacts our model in a variety of ways, some explicit and some more subtle. We enumerate various ways in which time affects our model in the paragraphs that follow.

First, our retention model at Time 1 (accession) will differ from the model at Time 2, in terms of the relative strength of relationships specified in the model, and the model will continue to change as it goes through the time continuum until the end of the first ADSO. This is depicted in Figure 2. Figure 2 indicates that time is a kind of "mega-moderator" variable in our model. In principle, time can change the relationship between virtually any set of variables in the model. For instance, the relationship between job satisfaction and commitment would likely change over time due to decreasing variability over time in both variables as attitudes crystallize and thereby become less malleable. Similarly, the extent to which coping effectiveness moderates the relationship between context evaluation and health would likely change over time if one’s social support system changes (e.g., an officer gets married or divorced). Another example would be the relationship between leadership climate variables (part of perceived context) and job satisfaction. History with commanding officers earlier in a career will likely affect one's appraisal of a new commanding officer which, in turn, would likely affect job satisfaction.

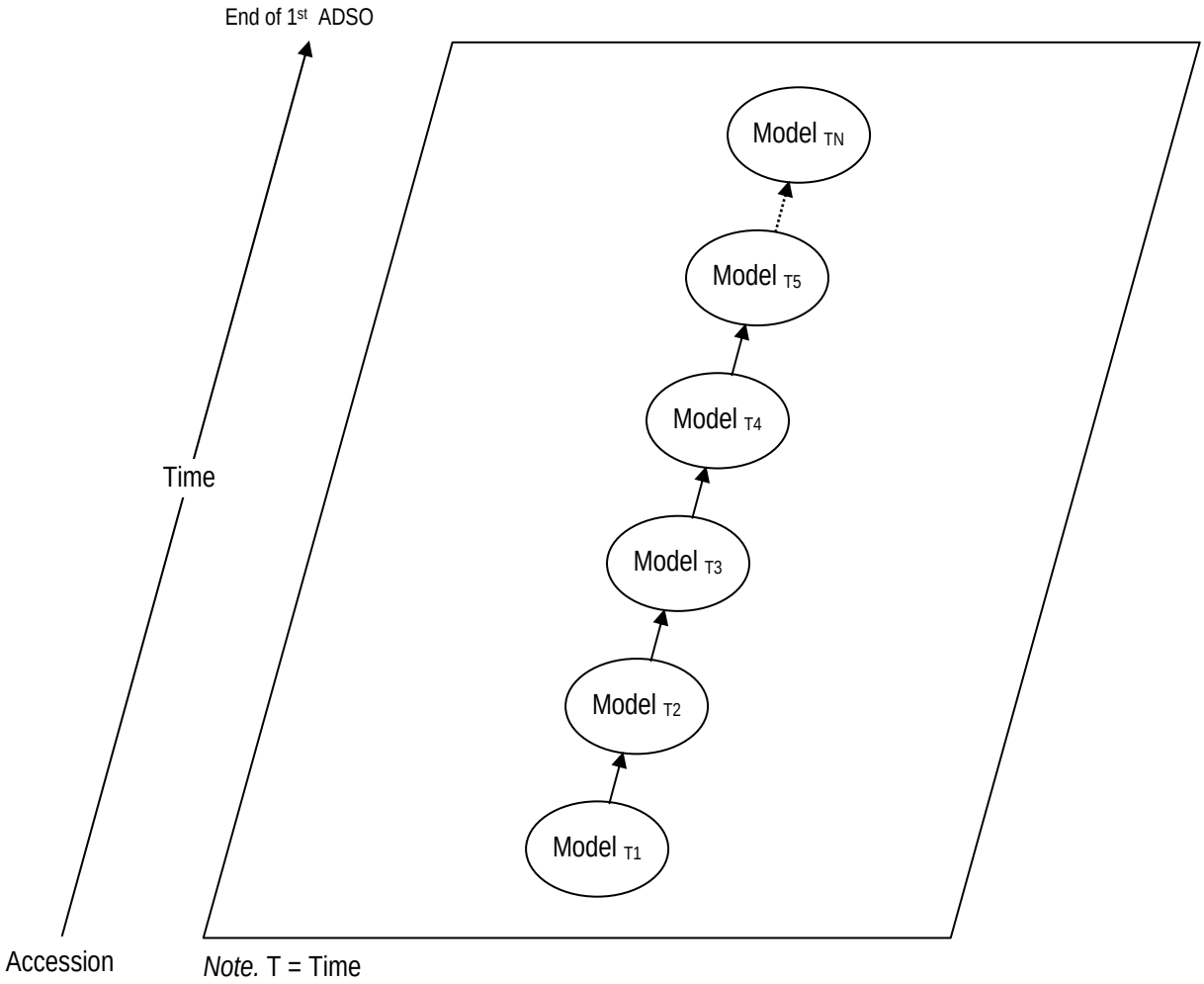

Figure 2. Time as a "Mega-Moderator."

Second, most variables in our model change over time. Work climate changes as leaders come and go; organizational justice changes with policy revisions, new information, and new leadership; work-family conflict changes when Soldiers are repeatedly deployed or spouses get new job offers; job duties change as officers' careers progress; unit cohesion and morale change with new leadership and transfers to other units; new mentors may be found, resulting in changes in mentoring and counseling quality; job embeddedness increases with time in the same place as the number of links increases and investments accumulate. As a result, commitment and its consequences also vary over time.

Third, the rate and nature of changes in the model variables should vary over time. For example, accumulated stressors may cause a steady decrease in commitment (continuous change) through context evaluation variables. However, some stressors (e.g., perceptions of gradual erosion of unit morale) would likely cause a more gradual change in commitment than others (e.g., perceived interactional justice due to change in CO). By contrast, certain critical events (e.g., a lucrative job offer made to one's spouse) may produce a sudden, precipitous drop in commitment (discontinuous rather than continuous change).

Fourth, the length of time required for model variables to affect one another may differ. For example, the effect of personality on perceptions of work tempo may be evident almost immediately, whereas the effect of mentoring/counseling quality on the relationship between thoughts of staying/leaving and intention to stay/leave may take longer to emerge.

Fifth, some variables in our model may be perceived as part of a cycle, changing their intensity, and perhaps even their meaning, with each repetition. For example, the sense that a cycle of insufficient recovery time in garrison followed by another deployment is being repeated, with no end in sight, would likely yield a nonlinear correlation between perceived operational tempo and (a) commitment, (b) thoughts of staying/leaving, and (c) the retention decision. This would be depicted as a decreasing slope, if perceived operational tempo served as the *x*-axis and the three "consequence" variables served as the *y*-axes (in three separate graphs). Moreover, the first deployment might be interpreted as an opportunity to experience challenge and adventure. Later deployments might be interpreted by the same officer much more negatively.

Figure 3 is intended to illustrate, in more concrete terms, one interesting way that time can affect the variables in our model. This is an example of how the model can generate a rich set of highly testable hypotheses. Figure 3 shows the levels of two variables: (a) *commitment*, and (b) *probability of staying beyond first ADSO*, experienced by a hypothetical officer, and how these variables are impacted by the same critical event occurring at two points in time. Assume that the values of time on the *x*-axis go from accession to completion of the first ADSO.

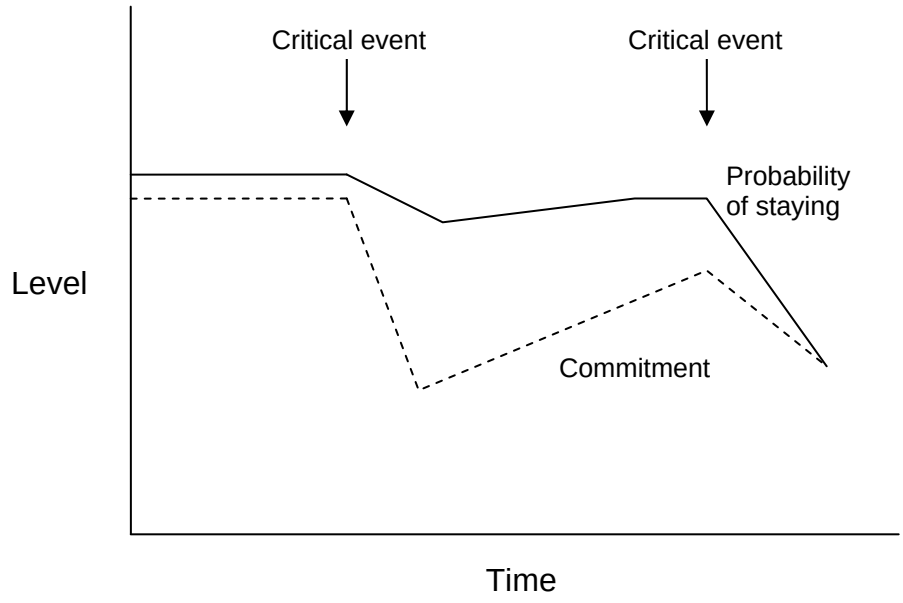

Figure 3. Example of Impact of Time on Model Variables.

This figure first illustrates the relatively straightforward point that these two variables are dynamic; they change over time. The figure also shows that the two critical events experienced

by the officer impact the variables differentially across time. This officer has high levels of both commitment and probability of staying upon accession. Relatively early in the officer's first ADSO, he experiences a critical event in the form of a severe and unfair punishment from his commanding officer. This causes a precipitous drop in commitment level, as one would expect. However, the critical event has a much more minor impact on the officer's probability of staying because the incident takes place relatively early in the officer's first ADSO. The gradually increasing level of commitment reflects the fact that the officer successfully negotiated this critical event.

Now, suppose the officer experiences the same critical event again, this time relatively late in his first ADSO, at the hands of another commanding officer in another unit. The second critical event has less impact on commitment than did the first critical event due to the fact that the officer built self-efficacy by successfully dealing with the first critical event. However, the second critical event has a much more dramatic impact on the officer's probability of staying due to its greater proximity to the end of the officer's first ADSO. This shows one way that the relationship between commitment and retention can change as a function of time, as predicted by our model.

Evaluation of the Model

We had several sources of data available to us to empirically evaluate aspects of the officer career continuance model. One type of data source was existing survey data that had been collected by the Army. Coupled with a longitudinal database of officers who completed these surveys, we were able to obtain measures of some of the constructs contained in our model and test hypotheses. Evaluating these interventions allowed us to test predictions made by the model. The other type of data source comes from the evaluation studies conducted in association with each of the three interventions we developed as part of the STAY project. Each of these interventions was designed to influence officer retention based on the preliminary model of career continuance (Schneider et al., 2006).

Because of limitations in project resources, we were unable to completely exploit the richness of these data sources. Rather, we did our best to identify representative hypotheses that could be tested given the data available and tried to focus on aspects of the model that are not well supported in the literature. In the following sections, we describe each data source, the hypotheses we formulated, how they were tested, and the results.

Archival Data

Assembling the Database

Our overarching objective in assembling a database of archival Army data was to test and refine the preliminary model of officer retention (Schneider et al., 2006). We used the model to drive our selection of data, seeking existing data sets that would allow us to measure key constructs in the model. We developed criteria outlining the desired features of the assembled database. These included (a) maximal number of constructs measured; (b) representation of key categories of perceptual and attitudinal constructs (e.g., perceived context, context evaluation, commitment, and thoughts of staying); (c) capacity to track changes in variables over time; (d) inclusion of the critical behavior of continuance; (e) ability to examine relationships between initial perceptions and subsequent attitudes and behaviors; and (f) relevance of the results for the current high OPTEMPO Army context.

We began by carefully reviewing surveys previously administered to Army officers, as well as descriptions of variables in personnel databases. The surveys examined as potential sources of data included the *Longitudinal Research on Officer Careers* (LROC) survey administered in 1988, 1989, 1990, and 1992, and the *Survey on Officer Careers* (SOC) administered in 1996, 1998, 2000, 2005, and 2007. We also scrutinized the Spring 2005 *Sample Survey of Military Personnel* (SSMP) and the *Officer Longitudinal Research Data Base* (OLRDB).

For each potential source of data, PDRI researchers classified items based on the definitions of the constructs specified in the taxonomies of key variables for the preliminary model of officer retention. Each item was compared to the definitions and was either classified as a potential measure of a specific construct or set aside. After all the items within a data source were reviewed, we evaluated the extent to which the data source would contribute to the desired features of the final, target database. Then, we looked across data sources to consider which combination of data sources would best fulfill the majority of desired features.

To achieve the criteria of being able to track changes in variables over time, we identified instances in which the same or highly similar questions were asked on two or more surveys. This effort was facilitated by a "cross-walk" developed by ARI that showed common items across the four LROC surveys and the 1996 SOC survey. We expanded this cross-walk to include the nine administrations of the LROC and SOC surveys between 1988 and 2007. We coded items in terms of the survey years on which they appeared, as well as their degree of similarity across different years. This resulted in an extensive mapping of like-items across nearly 20 years of survey administrations. Generally, if the same question was found to appear more than once, it was asked on at least two consecutive surveys before being heavily modified or phased out. A small sub-set of questions was asked on every LROC/SOC survey.

In formulating our data request, we thoroughly considered what combination of data sources would most efficiently allow us to test the questions of interest in this research. It was crucial to examine the determinants of continuance behavior, as well as to investigate how perceptual and attitudinal variables changed over time. We also wanted to ensure that our conclusions were highly relevant in the current Army context. We concluded that data from the 2005 SOC, 2007 SOC, and OLRDB would best meet these priorities. Analysis of data from the 2005 SOC and the OLRDB permits the testing of the determinants of continuance behavior specified in the preliminary model of officer retention. Analysis of data from the 2005 and 2007 SOC makes it possible to examine relationships in the model that deal with changes in perceptions, attitudes, and intentions to stay over time.

ARI and PDRI personnel worked together to assemble the database. First, SOC data were organized by ARI. ARI staff assigned a number to each officer's data that permitted them to later match the SOC data to data from the OLRDB. In order to protect survey respondents' anonymity, these assigned case numbers were not personally identifying. Second, a PDRI researcher reduced the size of the database by (a) eliminating items that had not been mapped to the model of officer retention, and (b) retaining only data from officers who were in their first ADSO in 2005 (e.g., lieutenants and captains). By excluding officers who were not the target of the STAY initiative, the volume of data that needed to be extracted from the OLRDB was substantially decreased, lessening the demands on ARI resources. Third, PDRI returned the edited SOC data to ARI. Fourth, ARI extracted the requested OLRDB data that matched the cases remaining in the edited SOC data file. Finally, ARI returned the data to PDRI for analysis.

Construct Measurement

After receiving the SOC data, we completed a final review of the classification of the SOC questions with the final revised version of the officer retention model. Specifically, for each SOC question we examined its associated construct in light of the data and revised model. In general, we found that our initial classification of the questions was appropriate and used this information to inform scale creation.

There were 85 specific constructs from the final model that had the potential to be measured in the SOC 2005 and 2007 data (see Table 5). In addition, the model specifies several potential moderator variables, some of which were measured in the SOC questionnaires (e.g., time in service, perceived economic constraint). In the model, the 85 constructs are grouped into 24 broader categories (e.g., Perceived Family Satisfaction/Support), which are in turn associated

with the 13 factors of the model represented by the labeled boxes in Figure 1 (e.g., perceived context), including potential moderators. Several relationships in the model are thought to be moderated by a variety of factors. The moderators included in the SOC data are expected to moderate the relationships between thoughts of staying/leaving, intention to stay/leave, and retention behavior.

We were able to measure 47% of the specific constructs with the SOC data (i.e., 40 constructs in 2005 and 41 constructs in 2007). Table 5 shows all model constructs and the number of associated SOC 2005 and 2007 questions before the construct scales were created. Given that the data were collected with a self-report survey, the model constructs measured were typically those that are attitudinal and perceptual in nature (e.g., commitment, job satisfaction, perceived work-family conflict). Most of the context variables (e.g., actual communication quality, unit cohesion) could not be measured by the SOC questionnaires. One exception was Mentoring and Counseling Quality, measured in both 2005 and 2007. The items within this scale measured relatively objective aspects of the officer evaluation report, such as how many times the rater and senior rater provided the officer with feedback on his/her performance and whether or not he or she received a copy of the Rater's Support Form.

There was almost complete overlap in the constructs measured in the 2005 and 2007 SOC questionnaires, with some notable exceptions. The constructs of psychological health (stress), retention plans at entry, and deployment-related stress were measured in 2007 but not in 2005. Perceived mentoring/counseling quality and career advancement opportunities were measured in 2005 but not again in 2007 (see Table 5). In general, this overlap provides an opportunity to examine individual changes in constructs over time.

To create construct scales we calculated frequencies for all questions identified as measuring model constructs. Based on our review of the frequency tables we reverse scored or recoded questions as appropriate. Finally, we calculated intercorrelations and internal consistency reliabilities for multiple questions measuring a single construct. We used the results of these analyses as well as construct definitions and question content to determine whether questions should be included in the initial scale, reclassified, or not classified with any model constructs.

Table 5 also shows the final number of SOC 2005 and 2007 questions measuring each model construct after the scales were created. After creating the scales, approximately one quarter of the model constructs were measured by a single SOC question in each year. We typically eliminated questions from the construct scales based on the initial analyses.

Table 6 shows the internal consistency reliabilities for the initial and final construct scales for 2005 and 2007. When alpha was less than .70 on the initial scale, we evaluated the item statistics for each item (i.e., item-total correlation, alpha if item deleted) to refine the scale. To improve scale reliability, we reclassified a question to another scale, eliminated the question from the scale, or created separate subscales.

To inform the process of identifying potential subscales, we conducted principal axis factor analyses with direct oblimin rotation for those scales with a large number of items and low internal consistency reliabilities. We used the results of the factor analyses to determine whether it was possible to differentiate subscales. For the SOC 2005 data we created subscales for three

constructs: (a) Army consistent personality, (b) job satisfaction, and (c) perceived procedural justice. For Army consistent personality, there were two distinct aspects of the construct: (a) consistency with the Army's values, and (b) consistency with the Army's mission. For job satisfaction, we identified three subscales: (a) general satisfaction, (b) satisfaction with pay and benefits, and (c) satisfaction with working conditions (e.g., number and length of deployments). For perceived procedural justice two distinct subscales emerged: (a) perceived procedural fairness of the performance evaluation process, and (b) perceived procedural fairness of the Officer Personnel Management System (OPMS). Given the better reliability of the SOC 2007 scales, it was not necessary to create any subscales.

Some scales could not be improved by eliminating items, adding items, or splitting them into subscales. For those scales for which alphas were less than .40, we included the individual questions in the database as stand-alone measures of the construct. For example, for the perceived organizational context construct of perceived predictability, the alpha for the final scale was .14. Therefore, we created two separate variables measuring this construct using the standard scores of the two questions classified as relevant to this construct. We also created separate standardized variables if it was clear that the questions within the scale were measuring very different aspects of a multidimensional construct or if a single question in a scale significantly reduced the internal consistency reliability. All composite scale scores were created by calculating the mean of the standardized question scores. We created 28 construct scales and 10 single-question variables for each SOC year.

Table 5.
Number of Questions in SOC 2005 and 2007 Data Measuring Each Construct Before and After Scale Creation

Construct Category	Specific Construct	2005 Before	2005 After	2007 Before	2007 After
Commitment	Overall	6	5	7	6
	Affective Commitment	4	3	5	3
	Investments	2	2	2	3
	Normative Commitment	0	0	0	0
	Intention to Stay	3	2	3	2
	Thoughts of Leaving	1	1	1	1
Moderator	Perceived Economic Constraint	4	2	3	2
	Time	4	4	12	12
Critical Event	Deployment	3	3	3	3
Context Evaluation	Perceived Organizational Support	3	3	3	3
	Job Satisfaction	13	12	22	22
	Perceived Family Satisfaction/Support	6	4	9	9
	Perceived Career Satisfaction/Career Support	4	2	7	7
	Army Identity Salience	2	2	2	2
Coping Effectiveness	Self Efficacy	1	1	1	1
	Social Support	0	0	0	0
	Health (Stress)	0	0	2	2
Extra Army Context	National Army Prestige/Support	0	0	0	0
	Peacetime versus Wartime	0	0	0	0
Perceived Extra Army Context	Perceived National Army Prestige/Support	0	0	0	0
Family Satisfaction/Support	Spouse Satisfaction	0	0	0	0
	Family Support/Benefits	0	0	0	0
	Work-Family Conflict	0	0	0	0

Table 5.
Number of Questions in SOC 2005 and 2007 Data Measuring Each Construct Before and After Scale Creation (continued)

Construct Category	Specific Construct	2005 Before	2005 After	2007 Before	2007 After
Perceived Family Satisfaction/Support	Perceived Spouse Satisfaction	5	4	4	4
	Perceived Family Support/Benefits	0	0	0	0
	Perceived Work-Family Conflict	11	12	10	10
Leadership/Command Climate	Prioritization/Delegation Quality	0	0	0	0
	Mentoring/Counseling Quality	5	5	5	5
	Work Climate	0	0	0	0
	Transformational Leadership Style	0	0	0	0
Perceived Leadership/Command Climate	Perceived Prioritization/Delegation Quality	2	2	1	1
	Perceived Mentoring/Counseling Quality	1	1	0	0
	Perceived Work Climate	14	14	16	16
	Perceived Transformational Leadership Style	0	0	0	0
Organizational Context	Predictability	0	0	0	0
	Bureaucratic Organizational Structure	0	0	0	0
	Communication Quality	0	0	0	0
	Opportunity to Choose Post/Unit	0	0	0	0
Perceived Organizational Context	Perceived Predictability	2	2	3	2
	Perceived Bureaucratic Organizational Structure	0	0	0	0
	Perceived Communication Quality	1	1	1	1
	Perceived Opportunity to Choose Post/Unit	2	2	2	2
Organizational Justice Climate	Distribution of Desired Outcomes	0	0	0	0
	Distribution Procedures	0	0	0	0
	Interpersonal Treatment During Distribution Decisions	0	0	0	0

Table 5.
Number of Questions in SOC 2005 and 2007 Data Measuring Each Construct Before and After Scale Creation (continued)

Construct Category	Specific Construct	2005 Before	2005 After	2007 Before	2007 After
Perceived Organizational Justice Climate	Perceived Distributive Justice	6	4	5	5
	Perceived Procedural Justice	7	4	5	5
	Perceived Interactional Justice	0	0	0	0
Person	From Military Family?	1	1	1	1
	Marital Status	1	1	1	1
	Reason for Joining Army	0	0	0	0
	Pre-commissioning Source	2	2	2	2
	Retention Plans at Time of Entry	0	0	1	1
	Army Consistent Personality	5	4	2	2
	Physical Fitness	0	0	0	0
	Number of Dependents	1	1	1	1
	Expectations Regarding Army Life	1	1	1	1
	Health Problems at Entry	0	0	0	0
Professional/Career Development	Educational/Training/Dev Opportunities	3	1	1	1
	Career Advancement Opportunities	2	1	0	0
	Career Development Support	2	2	2	2
Perceived Professional/Career Development	Perceived Educational/Training/Dev Opportunities	30	30	27	27
	Perceived Career Advancement Opportunities	9	9	10	9
	Perceived Career Development Support	6	5	5	5
Unit Context	Unit Cohesion	0	0	0	0
	Unit Self-Efficacy	0	0	0	0
	Work Group Characteristics	0	0	0	0
	Unit Morale	0	0	0	0

Table 5.
Number of Questions in SOC 2005 and 2007 Data Measuring Each Construct Before and After Scale Creation (continued)

Construct Category	Specific Construct	2005 Before	2005 After	2007 Before	2007 After
Perceived Unit Context	Perceived Unit Cohesion	0	0	0	0
	Perceived Unit Self-Efficacy	0	0	0	0
	Work Group Attachment	3	2	2	2
	Perceived Unit Morale	0	0	0	0
Work Characteristics	Job Duties	0	0	0	0
	Work Tempo	0	0	0	0
	Role Conflict	0	0	0	0
	Role Ambiguity	0	0	0	0
	Adequacy of Resources	0	0	0	0
	Deployment-Related Stressors	0	0	0	0
	Pay/Benefits	0	0	0	0
Perceived Work Characteristics	Job Involvement	1	1	1	1
	Reaction to Work Tempo	5	5	5	5
	Perceived Role Conflict	0	0	0	0
	Perceived Role Ambiguity	0	0	0	0
	Perceived Adequacy of Resources	5	5	6	6
	Deployment-Related Stress	0	0	1	1
	Perceived Pay/Benefits	0	0	0	0

Table 6.
Internal Consistency Reliabilities for SOC 2005 and 2007 Initial Construct Scales

Construct Category	Specific Construct	2005 Before	2005 After	2007 Before	2007 After
Commitment	Overall	.58	.61	.71	.71
	Affective Commitment	.38	.42	.67	.79
	Investments	.43	.43	.39	.50
	Intention to Stay	.40	.79	.11	.17
Moderator	Perceived Economic Constraint	.36	.52	.36	.51
Context Evaluation	Perceived Organizational Support	.46	.46	.70	.70
	Job Satisfaction: Overall	.63	n/a	.90	.90
	Job Satisfaction: Pay	n/a	.65	n/a	n/a
	Job Satisfaction: Work Conditions	n/a	.26	n/a	n/a
	Job Satisfaction: General	n/a	.70	n/a	n/a
	Perceived Family Satisfaction/Support	.59	.69	.80	.80
	Perceived Career Satisfaction/Career Support	.26	.72	.83	.83
	Army Identity Salience	.56	.56	.59	.59
	Health: Psychological	n/a	n/a	.51	.51
Perceived Family Satisfaction/Support	Perceived Spouse Satisfaction	.77	.81	.81	.81
	Perceived Work-Family Conflict	.84	.84	.85	.85
Leadership/Command Climate	Mentoring/Counseling Quality	.79	.79	.78	.78
Perceived Leadership/Command Climate	Perceived Prioritization/Delegation Quality	.35	.35	n/a	n/a
	Perceived Work Climate	.93	.93	.95	.95
Perceived Organizational Context	Perceived Predictability	.14	.14	.64	.74
	Perceived Opportunity to Choose Post/Unit	.29	.29	.29	.29
Perceived Organizational Justice Climate	Perceived Distributive Justice	.84	.96	.94	.94
	Perceived Proc. Justice: All	.54	n/a	.84	.84
	Perceived Proc. Justice: Perf. Eval.	n/a	.96	n/a	n/a
	Perceived Proc. Justice: OPMS	n/a	.96	n/a	n/a

Table 6.
Internal Consistency Reliabilities for SOC 2005 and 2007 Initial Construct Scales (continued)

Construct Category	Specific Construct	2005 Before	2005 After	2007 Before	2007 After
Person	Army Consistent Pers.: Overall	.33	n/a	.43	.43
	Army Consistent Pers.: Values	n/a	.41	n/a	n/a
	Army Consistent Pers.: Mission	n/a	.52	n/a	n/a
	Pre-Commissioning Source	.42	.42	.42	.42
Professional/Career Development	Educational/Training/Development Opportunities	.11	n/a	n/a	n/a
	Career Advancement Opportunities	.00	n/a	n/a	n/a
	Career Development Support	.74	.74	.76	.76
Perceived Professional/Career Development	Perceived Educational/Training/Development Opportunities	.92	.92	.94	.94
	Perceived Career Advancement Opportunities	.70	.70	.68	.71
	Perceived Career Development Support	.52	.57	.46	.46
Perceived Unit Context	Work Group Attachment	.52	.62	.68	.68
Perceived Work Characteristics	Reaction to Work Tempo	.76	.76	.73	.73
	Perceived Adequacy of Resources	.78	.78	.79	.79

Tests of Hypotheses

Influence of Time on Intentions and Actual Separation

We tried to make clear in the description of the model that time is a pervasive element that affects many aspects of the retention decision process. For example, we expected that time left in service obligation would moderate the relationship between intention to stay/leave and the ultimate decision to separate from the Army. This is because the more time there is between forming an intention and the opportunity to execute the intended behavior, the more opportunities there will be for the individual to change the intention. This principle was described in Figure 3, where the probability of staying dropped very slightly when there was a decrease in commitment early in the service obligation, but dropped precipitously when the decrease in commitment was closer to the time at which it was possible to leave. Thus, we formed the following hypothesis:

H1: Time left in service obligation will moderate the relationship between intention to stay/leave and retention decision, such that those earlier in their service obligation will be less likely to follow through on their intention than those who are further along in their obligation.

To compute time left in service obligation, we began with the date of entry on active duty in the current tour (the year, month, and day an officer is commissioned) from the OLRDB and added three years, four years, or five years depending on whether the source of commission was OCS, ROTC, or USMA, respectively. This is a somewhat crude measure because some officers may have already extended their obligation (e.g., by accepting special training or education that comes with a promise of extra service time), but this would tend to decrease the power of our analysis to find an effect rather than bias it in favor of finding an effect.

Intention to stay/leave was measured by an item from the 2005 SOC that asked what the officer's career intentions were, with a 6-point scale that had the following anchors:

(1) *I will definitely leave the Army upon completion of my obligation*

(2) *I will probably leave the Army upon completion of my obligation*

(3) *I am undecided whether I will stay in the Army upon completion of my obligation*

(4) *I plan to stay in the Army beyond my obligation, but am undecided about staying until retirement*

(5) *I plan to stay in the Army until retirement (e.g., 20 years or when eligible to retire)*

(6) *I plan to stay in the Army beyond 20 years*.

Based on responses to this variable, we classified respondents as (a) definitely/probably leaving upon completion of obligation (response 1 or 2), (b) undecided (response 3), or (c) definitely/probably staying past current obligation (response 4, 5, or 6).

The OLRDB database provided the separation date for officers that left the Army. We created a dichotomous stayed/left variable to capture this information. The earliest separation date for anyone who completed the 2005 SOC survey was 1/26/2005 and the latest separation date in the database that was available to us was 9/30/2006.

Because the dependent variable (separation) was dichotomous, we could not use moderated multiple regression to test time left in service obligation as a moderator. Instead, we selected 2005 SOC survey respondents whose obligations were up within approximately six months of completing the survey (1/26/2005 – 7/31/2005) and respondents whose obligations were up during approximately the last six months of the period for which data were available (3/30/2006 – 9/30/2006). Within each of these groups, we computed (a) the proportion of respondents who indicated on the survey that they would definitely or probably leave upon completion of their obligation that actually did leave, and (b) the proportion of respondents who indicated on the survey that they would definitely or probably stay beyond their obligation that actually did stay. We then tested the difference between these proportions across groups.

In order for H1 to be accepted, a higher proportion of those who intended to leave would have actually left in the group whose obligation was up soon than in the group whose obligation was up later. A similar relationship would be found among those who intended to stay. The results are shown in Table 7.

Among those who responded that they would definitely or probably leave when their service obligation was up, 63.5% of those whose obligations were up soon actually left while 51.7% of those whose obligations were up later actually left. A *z*-test of the difference between independent proportions showed that this was a significant difference ($z = 3.07$, $p = .002$). Almost everyone in both groups who responded that they would definitely or probably stay did stay, so there was no difference between groups on this comparison ($z = 1.07$, $p = .28$). Those who were undecided were more likely to stay when their obligation was up soon (91.0%) than when it was up later (82.7%; $z = 2.22$, $p = .027$). This was expected because officers can leave anytime after their obligation is complete, so "undecideds" would be likely to continue until they make up their mind when their obligation is up soon.

Table 7.
Relationship Between Intention to Stay/Leave and Actual Separation Behavior by Time Left in Service Obligation

	Obligation Up Within 6 Months (N = 1,068)		Obligation Up Between 14-20 Months (N = 1,327)	
Intention	Stayed	Left	Stayed	Left
Probably/definitely stay	650 (96.4%)	24 (3.6%)	574 (95.2%)	29 (4.8%)
Undecided	122 (91.0%)	12 (9.0%)	214 (82.7%)	45 (17.3%)
Probably/definitely leave	95 (36.5%)	165 (63.5%)	224 (48.3%)	240 (51.7%)

These results support the first hypothesis, because time left in service obligation did influence the extent to which intentions coincided with behavior. Those who intend to leave are more likely to actually leave when there is less time left in the obligation than when there is more time left in the obligation. It is worth noting that there appears to be considerable room to influence the intention to leave when there is a reasonable amount of time left before the decision to leave can be made. Although officers who appeared to have made up their mind to leave after their obligation was complete had 14 to 20 months to prepare for their intended departure, almost half still had not separated when their obligation was up.

Moderators of the Relationship between Thoughts of Staying/Leaving and Intentions

Another relationship that our model suggests is influenced by a number of potential moderators is the relationship between thoughts of staying/leaving and intention to stay/leave. Many officers entertain thoughts about whether they should stay in or leave the Army, but

simply thinking about leaving does not always result in the formation of an intention to leave. Two proposed moderators of this relationship are perceived economic constraint and mentoring/counseling quality. Perceived economic constraint was expected to moderate this relationship because an officer who is thinking about leaving will be less likely to form the intention to leave if he or she does not feel confident that his or her economic needs will be met outside the Army. If an officer believes that it would be difficult to find a job with comparable pay and benefits in the civilian world, thoughts of leaving will be less likely to influence an intention to stay. Mentoring/counseling quality was expected to moderate this relationship because an effective mentor or counselor can help guide an officer through difficult times, preventing thoughts of leaving from becoming an intention to leave. Thus, we proposed the following hypotheses:

H2: Perceived economic constraint will moderate the relationship between thoughts of staying/leaving and intention to stay/leave.

H3: Mentoring/counseling quality will moderate the relationship between thoughts of staying/leaving and intention to stay/leave.

We were able to test both of these hypotheses using data from both the 2005 and the 2007 SOC. Intention to stay/leave was operationalized by the same item used to test H1, except we maintained the original six points on the rating scale rather than collapsing it into three categories. Thoughts of staying/leaving were measured using a single item that stated "I frequently feel like leaving the Army," which was rated on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. This is not as precise a measure as we would prefer, but feeling like leaving the Army implies thinking about leaving the Army so we felt it was a serviceable measure of this construct.

Perceived economic constraint was measured on both the 2005 and 2007 SOC with two items: (a) "considering your qualifications and the job market, how difficult would it be to find a good civilian job right now?" (1 = *very difficult* to 5 = *very easy*), and (b) "how difficult would it be to be unemployed for 2-3 months if you needed to find a new job?" (1 = *very difficult* to 5 = *very easy*). We formed a composite of these two items and used that as our moderator variable.

We used hierarchical multiple regression to test for a moderating effect by first computing an interaction term between perceived economic constraint and thoughts of staying/leaving. When regressing intention to stay/leave on thoughts of staying/leaving and perceived economic constraint, moderation is indicated by a significant regression coefficient for the interaction term when controlling for the main effects of each independent variable (Baron & Kenny, 1986). Results of this regression analysis within each survey year are shown in Table 8.

The interaction term was significant within both 2005 and 2007, indicating a consistent moderating effect of perceived economic constraint. This result supports H2, because a greater amount of perceived economic constraint decreases the relationship between thoughts of staying/leaving and intention to stay/leave.

We used the same procedure to test the moderating effect of mentoring/counseling quality. For the purposes of this analysis, we selected mentoring/counseling items that referred

specifically to helping with keeping an officer's career on track and personal problems and eliminated items that referred to providing feedback on job performance because we believed that job performance counseling was very different from the kinds of counseling that would influence intentions to stay when someone is thinking about leaving. For both 2005 and 2007, we included the following items in the mentoring/counseling quality composite: Describe your current/most recent rater with respect to (a) "helping officers keep career on track" (1 = *very good* to 5 = *very poor*), and (b) "helping officers with personal problems" (1 = *very good* to 5 = *very poor*). Alphas for these scales were .83 in 2005 and .85 in 2007.

Table 8.
Moderating Effects of Perceived Economic Constraint on the Relationship between Thoughts of Staying/Leaving and Intention to Stay/Leave

2005				
Variable	*N*	*Beta*	R^2	ΔR^2
Step 1:	13,797			
Thoughts of Leaving		-.573***		
Perceived Economic Constraint		.072***	.351	--
Step 2:				
Interaction		-.064***	.356	.005***
2007				
Variable	*N*	*Beta*	R^2	ΔR^2
Step 1:	7,134			
Thoughts of Leaving		-.572***		
Perceived Economic Constraint		.089***	.351	--
Step 2:				
Interaction		-.048***	.353	.002***

*$p < .05$. **$p < .01$. ***$p < .001$.

Results of the regression analysis for mentoring/counseling quality within each survey year are shown in Table 9. The interaction term was significant within both 2005 and 2007, indicating a consistent moderating effect of mentoring/counseling quality. It is important to point out, however, that the effect sizes were very small, with changes in R^2 of .0005 in 2005 and .0004 in 2007. The significant results are primarily due to our large sample sizes. This result partially supports H3, because a higher perceived mentoring/counseling quality decreased the relationship between thoughts of staying/leaving and intention to stay/leave, but the effect was small. The results suggest that there is some effect, but perhaps better construct measurement is necessary to better capture that effect.

Table 9.
Moderating Effects of Mentoring/Counseling Quality on the Relationship between Thoughts of Staying/Leaving and Intention to Stay/Leave

2005				
Variable	*N*	*Beta*	R^2	ΔR^2
Step 1:	13,019			
Thoughts of Leaving		-.597***		
Mentoring/Counseling Quality		.000	.357	--
Step 2:				
Interaction		-.024***	.358	.001**
2007				
Variable	*N*	*Beta*	R^2	ΔR^2
Step 1:	6,761			
Thoughts of Leaving		-.585***		
Mentoring/Counseling Quality		.023*	.349	--
Step 2:				
Interaction		-.021*	.349	.000*

*$p < .05$. **$p < .01$. ***$p < .001$.

Thoughts of Staying/Leaving Mediating Relationship between Commitment and Intentions

Our initial model (Schneider et al., 2006) suggested that the relationship between commitment and intention to stay/leave is mediated by thoughts of staying/leaving. In other words, decreasing commitment does not lead directly to decreasing intention to stay, and increasing commitment does not lead directly to increasing intention to stay. Rather, changes in commitment lead officers to think more about whether or not they will stay, which then eventually becomes an intention. We expected this mediating effect to hold for all types of commitment. We therefore formulated the following hypothesis:

H4: Thoughts of staying/leaving will mediate the relationship between each type of commitment and intention to stay/leave.

Affective commitment and investments were the only types of commitment that were measured on the SOC (there was no measure of normative commitment). As shown in Table 5, affective commitment was measured by three items in both 2005 and 2007. Investments were measured by two items in 2005 and three items in 2007. Overall commitment was measured by all the items measuring either affective commitment or investments. Thoughts of staying/leaving and intention to stay/leave were measured using the same items indicated in the previous analysis.

Baron and Kenny (1986) presented a multiple regression procedure for determining if a variable mediates the relationship between two other variables. For our analysis, this procedure consisted of the following steps:

1. Regress thoughts of staying/leaving on commitment
2. Regress intention on commitment
3. Regress intention on commitment and thoughts of staying/leaving

To establish mediation, there must first be significant relationships between the variables in the first two equations. Second, thoughts of leaving (the mediator) must affect intention in the third equation and the effect of commitment on intention must be smaller in the third equation than in the second equation. Perfect mediation is indicated if commitment has no effect on intention when thoughts of staying/leaving is controlled. If there is still some effect of commitment on intention, partial mediation is indicated.

Table 10 presents correlations between each type of commitment, thoughts of staying/leaving, and intention to stay/leave for both 2005 and 2007. Because the first two equations involve just two variables, the standardized regression coefficient is equal to the zero-order correlation coefficient. The first condition for mediation was met, as all correlations were significant. Of course, it is very easy for a correlation to be significant with such large sample sizes, but the effect sizes were substantial as well so we can safely conclude that each type of commitment is related to both intention to stay/leave and thoughts of staying/leaving.

Table 10.
Correlations of Different Types of Commitment with Intention to Stay/Leave and Thoughts of Staying/Leaving Within Each Survey Database

Type of Commitment	Intention to Stay/Leave	Thoughts of Staying/Leaving
2005 (N = 13,797)		
Affective Commitment	.41***	-.51***
Investments	.57***	-.56***
Overall Commitment	.56***	-.62***
2007 (N = 7,134)		
Affective Commitment	.41***	-.49***
Investments	.57***	-.56***
Overall Commitment	.56***	-.60***

***$p < .001$.

Table 11 presents multiple regression results when intention to stay/leave is regressed on commitment and thoughts of staying/leaving, for each type of commitment. Results are

remarkably consistent across years, with standardized regression coefficients and multiple *R*s being almost the same in 2005 and 2007. For each type of commitment, the standardized regression coefficient for thoughts of staying/leaving was larger than the standardized regression coefficient for commitment. This indicates that thoughts of staying/leaving does mediate the relationship between commitment and intention to stay/leave for each type of commitment. Note also, however, that the standardized regression coefficient for commitment was always significant. This means commitment does still have some effect on intention to stay/leave even when controlling for thoughts of staying/leaving, indicating a partial mediation effect rather than complete mediation.

There is a stronger mediating effect of thoughts of staying/leaving for affective commitment than for investments. This suggests that changes in investments are more likely to directly influence intentions than are changes in affective commitment, which are more likely to incur thoughts of staying or leaving before an intention is formed. An important area of future research would be to determine under what circumstances changes in either type of commitment are most likely to bypass thoughts of staying/leaving and have a direct influence on intentions, and whether it is more difficult to change the intention when the influence is direct. It would also be important to determine if the variables that moderate the relationship between thoughts of staying/leaving and intention to stay/leave also moderate the relationship between commitment and intentions when thoughts of staying/leaving do not mediate that relationship.

Because we found a partial mediating effect rather than a complete mediating effect, the fourth hypothesis was partially supported. This result caused us to make a change in the final career continuance model from the preliminary model (Schneider et al., 2006). In Figure 1, we added a direct path from commitment to intention to stay/leave, rather than having a completely mediating relationship through thoughts of staying/leaving. We expect that this direct effect is most likely to hold earlier in an officer's career, when commitment and intention are nearly synonymous because the career intention the officer had when entering the Army is likely the primary driver of commitment. At this time, thoughts of staying or leaving are less likely because the decision point is still a long way off. There have also been fewer opportunities for the officer to experience critical events that would lead directly to thoughts of staying or leaving. This is another example of the influence of time on the relationships in the career continuance model. This is a hypothesis that could be tested with the SOC and OLRDB data we have, and it would be a very interesting hypothesis to test in a future project.

Table 11.
Multiple Regression Results When Intention to Stay/Leave is Regressed on Different Types of Commitment and Thoughts of Staying/Leaving

2005		
Independent Variables	*Beta*	*R*
Affective Commitment	.151***	.603
Thoughts of Staying/Leaving	-.512***	
Investments	.344***	.654
Thoughts of Staying/Leaving	-.397***	
Overall Commitment	.319***	.639
Thoughts of Staying/Leaving	-.390***	

2007		
Independent Variables	*Beta*	*R*
Affective Commitment	.163***	.603
Thoughts of Staying/Leaving	-.507***	
Investments	.353***	.655
Thoughts of Staying/Leaving	-.388***	
Overall Commitment	.320***	.640
Thoughts of Staying/Leaving	-.394***	

***$p < .001$.

Effect of a Critical Event on Thoughts of Staying/Leaving

Critical events are an important part of the officer career continuance model because they can help explain an abrupt change in an officer's career plans. Critical events are by definition events that cause an individual to think differently about staying or leaving. Therefore, our model contains a direct path from critical events to thoughts of staying/leaving. It is difficult to test the

influence of critical events with the archival dataset because they are discrete events that are highly personal. Nevertheless, we were able to identify one critical event that happened to a sufficient number of survey respondents that we could measure its impact on thoughts of leaving. That event was having a first child. Although having a child is likely to have different effects on different people, we believed it would at least get officers to think about leaving the Army even if they ultimately decided that having a child would keep them in the Army. We proposed the following hypothesis:

H5: Survey respondents who had their first child during the period between surveys will be more likely to increase thoughts of staying/leaving than respondents who did not have a child.

To operationalize the critical event, we selected survey respondents who indicated they had no dependent children on the 2005 SOC and one dependent child on the 2007 SOC. We did not include respondents who had two or more dependent children in 2007 because having another baby in such a short time may have caused an effect that would be harder to interpret. Some may have adjusted quickly to the first baby to have another one so soon. Others may have increased their thoughts of leaving on the second child instead of the first. To keep the analysis as clean as possible, we only considered respondents with one child in 2007 and none in 2005. This was 474 respondents, compared to 1,479 respondents who had no dependents on both surveys. We created a dummy variable where 1 = had first child and 0 = did not have first child. Thoughts of staying/leaving was measured in 2005 and 2007 using the same single item that was used in previous analyses.

We used the analysis of covariance (ANCOVA) approach to analyze the data. The ANCOVA approach takes into account individuals' scores at Time 1 when testing for differences between the two groups on scores at Time 2. It also permits for the control of other covariates that might generate differences on the variable of interest that are not attributable to the independent variable (Reichardt, 1979). Hierarchical regression procedures can be used to implement the ANCOVA approach. The Time 1 score is entered first as a covariate, followed by any other covariates. On the last step, the dummy variable is entered. A significant change in R^2 indicates that the independent variable (having a first child) had a significant impact on the dependent variable (thoughts of staying/leaving). We included gender as a covariate because we thought it was likely that having a first child would have differential effects on male and female officers.

The ANCOVA showed that having a first child had a significant effect on thoughts of staying/leaving ($\Delta R^2 = .002$, $t = 2.15$, $p = .032$). Survey respondents who had their first child tended to think more frequently about leaving the Army than did those who did not have a child. Although the effect was small, this result does support the hypothesis that a critical event such as having a first child directly influences thoughts of staying/leaving. Given the difficulty of detecting an effect for a discrete event impacting a single-item measure of thoughts of staying/leaving on surveys two years apart, this result is indeed quite meaningful. Thus, H5 was supported.

Project STAY Interventions as Tests of the Model of Career Continuance

We developed and evaluated three interventions that our preliminary model of career continuance suggested would impact company grade officer retention. For each of these interventions, we conducted evaluation research in which quantitative data were collected to measure the effect of the intervention on the retention-related attitudes and intentions of company grade officers. The results of these evaluation studies helped to inform the final model of officer career continuance. In the following sections, we summarize each of these interventions and how the results of each evaluation effort supported different elements of the model.

Company Grade Officer Retention Web Site

It is undoubtedly important for commanding officers (COs) to be actively involved in the decision-making process of their company grade officers (i.e., presenting the case for continuing as an officer), but a CO cannot be expected to be involved with every aspect of the decision-making process for all officers under his/her command. It therefore makes sense to have a resource that is directly accessible by, and speaks directly to, the officer. The purpose of the company grade officer retention Web site is to improve career continuance by helping officers find relevant information throughout their early career, but especially when they are thinking about leaving the Army. Relevant information includes facts that (a) address information gaps, (b) help officers perform a realistic cost-benefit analysis regarding Army vs. civilian life/career, and (c) reframe and broaden perspectives on Army life. The development and evaluation of the Web site is described in Hezlett et al. (2009).

The Web site offers a combination of unique, site-specific content and links to various military, government, and civilian Web sites. Topics covered by the Web site include (a) career branch information, (b) military vs. civilian job comparisons, (c) education benefits, (d) installation information, (e) health, (f) deployment, (g) family, and (h) compensation and benefits. A primary goal of the Web site is to serve as a one-stop shop for company grade officers to find information on Army life, allowing the search for information to be simplified and shortened.

The company grade officer retention Web site should influence retention at several points in our model. First, many aspects of this Web site are intended to bring officers' perceptions of their organizational context more in line with reality. It is likely that many company grade officers have misperceptions that prevent them from seeing important benefits of Army life. Additional access to information about career opportunities, benefits, and family resources should improve officers' perceptions of key aspects of Army context and, consequently, enhance context evaluation. Second, the Web site may help officers deal with critical events that occur in the life of an officer. The Web site includes links to resources related to common critical events, such as starting a family or being deployed. Greater awareness of and access to resources that can help officers deal with a critical event should help to reduce the event's effect on thoughts of leaving. Finally, this resource could also provide more accurate perceptions of life outside the Army, helping prevent thoughts of leaving from becoming intentions to leave. Overall, the Web site should enhance officers' perceptions of the Army context and, in turn, improve their evaluation of the Army and increase their commitment to the Army. The perceived context

variables most likely to be influenced by the Web site include aspects of officers' work characteristics, family satisfaction/support, and professional/career development.

More specifically, the two aspects of work characteristics that we anticipated would be influenced by the Web site were perceived pay and benefits and perceptions of deployment support. By helping officers become fully informed about their pay and benefits and providing them with examples of how they compare to those of potentially comparable civilian jobs, we expected the Web site would give officers more realistic expectations about their pay and benefits and be more satisfied with them. The Web site also may help reduce deployment-related stress by giving officers information and pointing them towards resources that would help them prepare for and return from deployment. By providing officers with access to information and resources about coping with deployment, we anticipated the Web site would help officers better cope with deployment and give them a more positive view of the Army's deployment support.

Two variables representing family satisfaction/support were expected to be positively influenced by the Web site: (a) perceived family support/benefits, and (b) spouse satisfaction. By providing information about benefits and resources available to spouses and family, the Web site should have a direct, positive impact on officers' perceptions of family support and benefits. Utilizing and applying the information about benefits and resources for family members and spouses should enhance spouse satisfaction.

Finally, all aspects of the professional/career development component of the perceived context taxonomy should be favorably affected by the Web site. By providing information about educational benefits and opportunities, as well as career information and opportunities, we expected the Web site would enhance officers' perceptions of the career development opportunities and support the Army provides.

More favorable perceptions of the context should result in more favorable evaluation of the context. Specifically, we expected the more favorable context perceptions resulting from the Web site to lead to greater family satisfaction, increased career satisfaction, stronger Army identity salience, and improved perceptions of organizational support. These gains in context evaluation variables should lead to increased commitment to the Army. Commitment is expected to be positively related to thoughts of staying, career intentions, and retention behavior.

To evaluate the impact of the Web site on officers' perceptions of the Army, attitudes, commitment, thoughts of leaving, and career intentions, we used a pre-test post-test control group design. The treatment condition included an introduction to the Web site, followed by the opportunity to use the Web site for about two months. Those in the control condition were not given access to the Web site. Both groups completed a pre-survey measuring variables that we had identified as playing important roles in officers' retention decision processes and included in the preliminary model of company grade officer retention. About two months after their initial participation, officers in the control and treatment sessions were contacted by email and invited to complete a post-survey.

We used ANCOVA to test for statistically significant differences between the control and treatment groups, but none were observed. Providing company grade officers with information about the Web site and the opportunity to use it on their own time did not affect their perceptions

of the Army context, their evaluations of the Army context, their commitment to the Army, their thoughts of leaving, or their career intentions. On the other hand, officers in the treatment condition who visited the Web site after the orientation subsequently had significantly more favorable perceptions of their pay and benefits than those who did not. A Web site tailored to the interests and needs of company grade officers, therefore, has the potential to influence variables expected to be part of officers' retention decision processes if it is used.

Unfortunately, this research suffered from small sample sizes because of the difficulty in getting officers to respond to the post-survey, limiting the power to detect effects. Only 30 officers in the treatment group responded to the post-survey (18.1%), and only 14 of these respondents visited the Web site on their own during the evaluation period. Therefore, this research did not allow us to draw many conclusions about the effectiveness of the Web site or the viability of the career continuance model. The finding of improved satisfaction with pay and benefits among those who visited the Web site supports communication quality as a moderator of the relationship between context and perceived context.

Former Officer Video

There is anecdotal evidence that a significant portion of the company grade officers who leave the Army prior to retirement regret their decisions. According to sources at Human Resources Command, a number of officers who have left the Army have either returned to or attempted to return to the Army. Many who leave find that civilian work is not as fulfilling as Army work, primarily because of the lack of overarching national purpose or the lack of camaraderie, selflessness, and team orientation found in the military. Others simply miss the excitement and clarity of mission. Only in retrospect do some officers realize how unique their opportunities in the Army were and that they needlessly left service prematurely.

For these reasons, we determined it would be advantageous to share the experiences of former officers with company grade officers by creating a video featuring former officers discussing what they do and do not miss about being an officer and the unique experiences and values that are not easily reproduced in the civilian world. The video provides company grade officers with the opportunity to reflect on those Army-specific intangibles that they may take for granted and that may cease to be parts of their lives were they to leave after their first ADSO. By focusing on the cognitive-emotional value of being an Army officer, the video complements other efforts to demonstrate the financial/transactional benefits of staying in the Army until retirement. As opposed to stressing what the officer receives by staying until retirement, the video highlights those qualities that the officer is able to contribute to his/her unit and country, how these contributions make the officer feel more alive and productive, and how the officer may regret foregoing these opportunities prematurely. The development and evaluation of the former officer video is described in Mael et al. (2009).

Similar to the retention Web site, the alumni video should have a positive impact on career continuance by (a) increasing affective commitment and investment in the Army and (b) providing more accurate perceptions of life outside the Army. Former officers who have left the Army prior to completing twenty or more years of service will be credible sources of influence for wavering current officers for a number of reasons. First, they can provide a realistic perspective on the pros and cons of ending one's career as an officer prematurely and can combat

the “grass is greener” syndrome that may occur among company grade officers. Second, they can highlight the benefits of continued Army service that may be taken for granted by current officers. Third, they can contradict false assumptions about corporate life, such as the presumed shorter workday or the relatively small amount of travel required for all jobs. Finally, as former members of the Army, they may be seen as less biased and more knowledgeable about the outside world than one’s commander. It is clear from interviews with former officers that even those who are financially successful in their civilian careers still miss aspects of Army life and can make a convincing case for urging company grade officers not to leave prematurely.

There are two primary ways that this intervention was expected to influence aspects of the retention model. First, it is intended to directly influence affective commitment and Army identity salience by reminding officers why they joined the Army and what the intangible benefits of being in the Army are. Conceptually, this intervention attempts to cause a shift in the factors being considered by company grade officers when making early career decisions. Research on the topic of psychological contracts suggests that there are two major types of contracts. Social or relational contracts are characterized by beliefs about social or emotional obligations (e.g., loyalty, support, organizational citizenship) rather than strictly monetary considerations. This yields a type of partnership between employee and employer, resulting in affective commitment from the employee and investments like training, career development, and job security from the employer (Grimmer & Oddy, 2007). When a perceived violation of the social contract has occurred, an employee tends to shift to a transactional contract with his/her employer (Pate & Malone, 2000). Transactional contracts focus on short-term monetary agreements, and employees are more concerned with personal benefit than with the goals of the organization (Grimmer & Oddy, 2007). Once this transactional contract predominates, employees tend to downplay psychological factors such as affective commitment when making decisions about staying with the organization (Robinson & Morrison, 2000). This intervention harnesses the suggestions of former officers to reconsider the psychological factors so central to their contract with the Army before deciding to prematurely end that relationship.

Second, this video is intended to be used as a tool by commanding officers who are counseling company grade officers to help them make the decision to stay in the Army. As such, it should moderate the relationship between thoughts of staying/leaving and intention to stay/leave and the relationship between intention to stay/leave and retention behavior.

We conducted evaluation research to measure changes in junior officers’ attitudes and intentions toward staying in the Army as a result of seeing the video. We conducted focus groups at which 155 current company grade officers with a wide range of career intentions were shown the video and queried about their reactions. We developed surveys to be completed by the officers both before and after viewing the video. We also conducted focus groups with 25 spouses of current officers, with no surveys administered.

Between 15-29% of those responding to the post-viewing survey agreed with survey questions about the video changing different attitudes they had about the Army (e.g., appreciate aspects of being an officer that were taken for granted, more convinced they made the right choice by joining the Army), and over 45% said that the video helped clarify for them the unique benefits of being an officer. About 34% said that because of their seeing the video they would now take into account the positive aspects of being an officer when making career decisions.

About 15% said that seeing the video actually increased the likelihood of their staying until retirement. These results suggest that the video was successful at influencing variables such as affective commitment and Army identity salience.

Focus group participants also commented that the video could be effective to spur conversation about whether it would be a smart idea to leave the Army, provided it was shown at the right time and in the right setting. All felt that there were windows of opportunity at which decisions were made and that that was when it would be most relevant. They did not feel that it could be effective when shown in a classroom setting (such as in the focus groups), especially if shown at the wrong stage of a career. Rather, it should be shown on a one-on-one basis by a commander, although not necessarily viewed by them together – rather, watched by the company grade officer as a springboard to a discussion with the commander. Many officers and almost all spouses felt it should also be seen by a couple together or even by a few couples together (up to six couples) with a discussion facilitator. This would enable the husbands and wives to open communication on a difficult issue – whether there would be negative repercussions for/by the officer if they left for the family's sake or negative repercussions for/by the spouse and family if they did not leave. These officers and spouses felt that the video could spur discussion in a way that simply sitting down to talk could not. Thus, the video should be successful as a potential moderator that helps to prevent thoughts of leaving from turning into actual separation.

Commander Counseling Training

The relationship between company grade officers and their commanding officers (COs) is of paramount importance. The first CO an officer has in his/her career plays a key role in company grade officer satisfaction and may be the most influential factor in the decision to stay or leave. In particular, company grade officers regard mentoring/coaching sessions with COs as playing an extremely important role in their retention decisions. Mentoring and coaching does not come easily to many COs. Some commanders fail to devote the necessary time to this endeavor and are viewed as lacking the information or credibility to be the primary source of advice or guidance for the company grade officer considering leaving the Army (Johnson et al., 2009). It is therefore critical that COs be provided with the training necessary to help them counsel their subordinate officers effectively, especially with respect to career continuance issues. This was the impetus for designing a training program for COs to train and motivate them to counsel their company grade officers with the ultimate retention of those officers in mind. The development and evaluation of the counseling training intervention is described in Johnson et al. (2009).

The training program has three primary objectives. First, to train Battalion and Company Commanders (and other appropriate individuals) to provide counseling that actively courts company grade officers to stay beyond their first ADSO. Second, to energize commanders to take on the challenge of successfully applying the training. Finally, to sensitize commanders to opportunities to provide retention counseling that are easily lost.

Because the purpose of this intervention is to increase COs' retention counseling skill and motivation, it should influence a number of the variables contained in the model. For example, one aspect of retention counseling is correcting misperceptions by presenting accurate information. This would yield more accurate company grade officer perceptions of the organizational context, which should increase overall satisfaction with different aspects of Army

life. This, in turn, should increase affective commitment and investment in the Army, which should ultimately enhance retention.

This intervention should also be very helpful to COs who must counsel officers through critical events such as being passed over for promotion, threat of divorce, and unexpected deployments. Counseling officers more effectively through these critical events should mitigate their effects on thoughts of leaving, both directly and (depending on the nature of the critical event) indirectly by affecting officers' perceptions of their work context.

Although much of the training is targeted to points in the retention process prior to the time when an officer is thinking about leaving, more effective retention counseling should also help to interrupt the relationship between thoughts of leaving and intention to leave. For example, this training will provide information related to dealing with an officer who has been approached by a headhunter and is, consequently, thinking about leaving the Army for the apparently greener pastures of the civilian sector. Armed with information about how to handle these types of scenarios, counselors should more effectively prevent thoughts of leaving from turning into intentions and, ultimately, decisions to leave.

Yet another way this intervention should impact retention is by addressing company grade officers' expectations regarding Army life, culture, and career shortly after the time of commissioning. These variables affect several antecedents of retention in the model, including perceived work context (e.g., perceptions of career advancement opportunities), context evaluation variables (e.g., job and career satisfaction), and affective commitment. This intervention should also affect perceived organizational support. More frequent and effective retention counseling by COs should enhance company grade officers' beliefs that the Army values their contributions and cares about their well-being.

After developing the training, we administered it during in-person training sessions to Company Commanders, Majors, and Battalion Commanders in four brigades. We evaluated the training by measuring trainee reactions and by measuring changes in retention-related attitudes and intentions among company grade officers in participating brigades before the training was administered and four months after training.

We found significant improvement in retention-related attitudes from Time 1 (prior to training) to Time 2 (approximately four months after training). Time 2 ratings were significantly higher for career satisfaction, satisfaction with leadership, job involvement, satisfaction with pay, perceived organizational support, work/family conflict, and career intentions. Our other analysis of attitude change indicated that a combination of formal and informal counseling had a significant impact on several attitudes, including affective commitment, career satisfaction, satisfaction with leadership, morale, and perceived unit morale. We also found that it was not just the quantity of counseling that impacts retention-related attitudes, but the quality of counseling as well. Rated counseling quality had an impact on attitudes such as career satisfaction, satisfaction with leadership, morale, perceived organizational support, and perceived unit morale. Thus, commanders who did a better job of counseling according to those counseled were more successful in influencing officers' attitudes.

Improved counseling was expected to change perceived context either by directly changing the context (e.g., leaders showing more concern for officers leads to more favorable perceptions of leaders and organizational support) or by better communicating the actual context (e.g., better explanations of pay and benefits leads to more favorable perceptions of pay and benefits). This moderating effect was strongly supported in this evaluation research, as there was consistent improvement in variables that fall into the perceived context or context evaluation categories.

We can also use the data from the training evaluation research to test other hypotheses that follow from the career continuance model that are not related to the counseling intervention. We present one hypothesis test here as an example. Our model proposes that Army identity salience should relate to normative and affective commitment, although we are not aware of this hypothesis ever having been tested. This variable, which reflects acceptance of Army values, would seem to reflect a desire to remain in the Army (affective commitment), as well as a sense of obligation (normative commitment) to the Army. In both the pre-survey and the post-survey administered during the training evaluation research, we measured Army identity salience and each kind of commitment, including the different aspects of continuance commitment (investments and perceived economic constraint). We did not expect a relationship between Army identity salience and continuance commitment because neither investments nor perceived economic constraint are theoretically related to Army identity salience. This led to the following hypothesis:

H6: Army identity salience will be correlated with affective commitment and normative commitment, but not with investments or perceived economic constraint.

This pattern of correlations would support Army identity salience as a contributor to affective and normative commitment by establishing the relationship between the constructs, while the lack of relationship with aspects of continuance commitment would show that the expected correlations were not due simply to common method variance.

Table 12 contains the correlations between Army identity salience and the different aspects of commitment for both the pre-survey and the post-survey. The pattern of correlations was as expected. Correlations with affective commitment and normative commitment were large and significant. The correlation with investments was significant on the pre-survey but was much smaller than for affective and normative commitment. On the post-survey, this correlation was small and not significant. The correlation with perceived economic constraint was small and not significant on both surveys. These results support Hypothesis 6.

Table 12.
Correlations Between Army Identity Salience and Different Types of Commitment

	Army identity salience	
Variable	Pre-Survey (N = 298)	Post-Survey (N = 190)
Affective commitment	.58***	.65***
Normative commitment	.45***	.45***

Investments	.22***	.10
Perceived economic constraint	-.01	.11

***$p < .001$.

Summary and Recommendations for Future Research

The purpose of this report was to describe the development and evaluation of a model of officer retention. Both a taxonomic model and a process model were presented, with the taxonomic model defining the constructs included in the process model. At the broadest level, these constructs include (a) person variables; (b) context; (c) perceived context; (d) context evaluation; (e) health; (f) commitment; (g) retention cognitions (including thoughts of leaving and intentions to leave); (h) critical events; (i) coping effectiveness; (j) social support; (k) various moderators (e.g., time, communication, perceived economic constraint); and (l) the retention decision.

We see organizational commitment (composed of affective commitment, normative commitment, and investments) as the primary determinant of retention, although the relationship between commitment and retention is mediated by thoughts of staying/leaving and intention to stay/leave. The determinants of commitment are (a) person variables, (b) overall evaluations of the context surrounding the officer (e.g., perceived organizational support, overall job satisfaction, perceived family satisfaction and support) and (c) health (psychological and physiological). The determinants of context evaluations are (a) person variables and (b) officers' perceptions of the context relevant to their work, family, unit, command, organization, and career, as filtered through the officer's own perceptions. The determinants of health include perceived context, context evaluation, and coping effectiveness. Social support is posited to directly affect coping effectiveness, as well as to moderate the relationship between coping effectiveness and health outcomes and the relationship between intention to stay/leave and the retention decision. Coping effectiveness is posited to have a bidirectional relationship with health, and to moderate the relationships between (a) perceived context and health, and (b) context evaluation and health.

An important aspect of the model is the inclusion of critical events that officers experience periodically throughout their careers. Examples of critical events include marriage, deployments, job offers, broken promises, and health problems. Critical events lead directly to thoughts of leaving or staying, and can also influence person variables directly.

There are numerous potential moderator variables influencing relationships at different points in the model. For example, the quality of communication can moderate the relationship between certain context variables and perceptions of those variables. The most pervasive moderator, however, is time, which impacts nearly every variable in the model, and exerts its impact in many different ways. Moderator variables are an extremely important aspect of the model, because they speak most directly to potential retention-enhancing interventions.

We conducted an initial evaluation of the model using (a) data obtained from existing officer surveys and tracking databases, and (b) evaluations of the interventions implemented as part of this project. We found empirical support for several hypotheses derived from the model. For example, we found evidence for (a) the moderating effect of time left in service obligation on the relationship between intention to leave and separation behavior, (b) the moderating effect of perceived economic constraint on the relationship between thoughts of staying/leaving and intention to stay/leave, (c) thoughts of leaving partially mediating the relationship between

commitment and intention to stay/leave, and (d) the direct effect of the critical event of having a first child on thoughts of staying/leaving.

In developing the career continuance model, many officers representing ranks O-1 through O-6 were consulted during focus groups and interviews; an enormous amount of the most rigorous, innovative, and relevant research literature available was reviewed; and a great deal of conceptualizing and integrative thinking was done. The result is, we believe, a scientifically rigorous, innovative, comprehensive, and highly applicable model. Nevertheless, there is more to do.

The following are suggestions for future research and development that emerged from our model:

- Much, though not all, of the empirical support for relationships specified in the model is based on cross-sectional research that does not permit causal inference. As such, future research should include designs that permit causal inference (e.g., longitudinal designs, training designs that include matched control groups). Given the importance of time in our model, longitudinal designs would be especially informative. Such designs would ideally include multi-wave data collection to better understand how key retention-related variables change over time, and what triggers those changes.

  Khoo, West, Wu, and Kwok (2006) describe several interesting and relevant longitudinal methods. One such method, growth curve modeling, may be especially interesting and appropriate for our purposes. According to Khoo et al., "[i]n longitudinal studies with three or more measurement waves, growth curve modeling can provide an understanding of individual change... [in that] researchers may study individual growth trajectories and relate variations in the growth trajectories to covariates that vary between individuals" (p. 309). It may be worthwhile to attempt to formulate a taxonomy of growth trajectories, and see if there are common causes that could realistically be modified. It would also be interesting to note the relative contribution to variance in the dependent variable by various between-person covariates suggested by the model.

- Additional exploration of some of the constructs specified in the model would be useful (e.g., burnout, social support, coping effectiveness). This would likely provide opportunities for development of new and better measures of those constructs and, as such, more sensitive tests of relationships specified in the model.

- Many of the relationships specified in this model are based on previous empirical research, but it would be useful to conduct research that establishes more precisely the form of those relationships (e.g., linear, nonlinear; unidirectional, bidirectional).

- Although we have made a very good start, many of the mediators and moderators of relationships proposed in our model have likely not yet been identified, and of those we have identified, some have not yet been investigated empirically.

- If feasible, multilevel research designs should be considered. Such research might, for example, pinpoint levels at which to intervene most effectively (e.g., individual, squad, platoon, company, battalion), and might yield additional moderators either within or across variable levels (e.g., battalion climate might moderate the relationship between two individual-level variables, suggesting that measurement and modification of battalion climate should be part of an intervention to enhance retention).

- Qualitative and quantitative research should be combined to enhance understanding of the meaning behind quantitative results. We did, of course, do qualitative research as part of this project in the form of focus groups and interviews. There are a variety of other specific methods of collecting and analyzing qualitative data (Madill & Gough, 2008), however, that could also be profitably utilized. Tying this into a previous suggestion, some of these qualitative methods (e.g., diary studies) might be particularly appropriate for longitudinal designs. Another qualitative research method, narrative analysis (Murray, 2003), would provide an interesting way to understand the meaning of certain constructs for officers. Given that most people prefer stories over statistical data, supplementation of rigorous quantitative research with rigorous and rich qualitative research may serve as a useful way of igniting interest in utilizing guidelines and interventions designed to enhance officer continuance.

  One narrative technique, the episodic interview, seems especially interesting. The idea is that the interviewer has a structured series of topics and seeks detailed narrative accounts about the participants' experiences with these topics. In general, people prefer stories and narratives to dry statistics. As such, narratives might be well received and put meat on the bones of paths specified by structural equation models or effect sizes generated by interventions. They could be used to (a) generate realistic previews that could be used to formulate stress inoculation interventions, (b) suggest ways of overcoming difficulties, (c) contrast positive and negative, or adaptive and maladaptive, ways of experiencing hassles and critical events, (d) provide a phenomenology of the Army experience associated with various model variables that would be informative and useful, (e) provide the basis for video-based training, (f) suggest new constructs, not in the literature, for incorporation into the retention model, and/or (g) suggest content for new interventions. There are, of course, many other methods that could be used. For example, we could develop a semi-structured interview designed specifically to explain arrows connecting constructs in a way that would be more accessible to officers as well as scientifically illuminating. Interview "topics" would thus be relationships between different constructs.

- We recommend doing additional qualitative research to identify more comprehensively the range of critical events. Perhaps some events could be identified from archival materials, such as exit interview notes, if those are available. These could then be supplemented by other qualitative research techniques in which we would seek to identify additional critical events, and to discern the different meanings that officers ascribe to those events. We could also look for themes, using qualitative data analysis methods (e.g., content analysis).

- It would be informative and useful to scale critical events in terms of their intensity and valence. This would, for example, give us a sense of the extent to which individuals agree that certain events are always good or always bad, as well as identify those events that officers can experience very differently. It would also give us a sense of how acute various critical events are, and whether there is agreement regarding that judgment.

- It would be useful to obtain retrospective narratives on critical events experienced by officers to learn whether some critical events are accompanied by a "sleeper effect," whereby outcomes are not detectable for some period of time after the event has occurred. (Retrospective accounts might be an interesting surrogate, though certainly not a substitute, for longitudinal research.)

- Formulation of a taxonomy of critical events would be useful as a guide to future research. As a starting point, it would be interesting to investigate the dimensions along which critical events vary (and/or the categories into which they can be classified).

- Another interesting angle on critical event research would be identification of instances where you get a "reverse shock effect." In other words, instead of focusing on critical events that jar officers into thinking about leaving, investigate critical events that tend to "shock" officers who fully intend to leave into thinking about staying.

- A number of research questions specifically dealing with stress and strain variables and their management (i.e., coping) would be useful to investigate, given the pervasiveness of both acute and chronic stress in Army life:

    - What is the prevalence and severity of various stress and strain variables specified in our model (e.g., burnout)?

    - How might recovery from burnout and other psychological strains be accelerated?

    - What leader behaviors influence the extent to which employees appraise stressful job demands as being challenges or hindrances?

    - How long do coping and stress management training interventions work before participants revert to baseline?

    - Related to the previous question, how frequently are "booster shot" interventions required to prevent reversion to baseline, and what should be the content and duration of those "booster shot" training interventions?

    - Are there stages of burnout, qualitatively distinct from one another, that can be identified or is burnout best thought of as a continuous variable? This would have implications for both diagnosis and treatment.

- What are the correlations between different kinds of deployment-related experience and various psychological and physical health variables?

- Emotional labor, or suppressing negative emotions to display a positive attitude (a significant aspect of Army life), is a common precursor to emotional exhaustion and depersonalization (Halbesleben & Bowler, 2007). What buffers the relationship between emotional labor and these two burnout dimensions?

- To what extent can officers deal with, or even overcome, burnout by reappraising their stressors as potential gains (e.g., challenges) rather than losses?

- If this sort of reframing is possible, what is the best approach for changing the way stressors are appraised? For example, perhaps -- with the right kind of supervisory support -- officers may come to perceive ambiguous role expectations as opportunities to carry out their own initiatives rather than as restrictions on their actions (Lee & Ashforth, 1996).

- Consider developing a taxonomy of social support that would, among other things, include function (e.g., instrumental, emotional, informational), source (e.g., supervisor, peer, spouse, other family member, friend), and nature of stressor as experienced by officers. Perhaps develop a measure based on this taxonomy.

- To what extent do officers accurately perceive and utilize the social support that is available to them?

- Consider creating training designed to teach officers to cultivate, and effectively use, their social support networks.

- Consider creating training designed to teach officers to provide social support more effectively. For example, information may be required for certain kinds of problems, and more emotion-based social support (e.g., empathizing) may be required for other kinds of problems.

- What weakens and strengthens existing social support network ties?

- Consider investigating the extent to which new telecommunication technologies can enhance social support for deployed Soldiers (e.g., to what extent would increasing video-based telephonic communication with family members or friends reduce strain?)

- Related to the previous point, consider training family members not to strain Soldiers during telephonic communication with them when the Soldiers are deployed.

- Some aspects of social network analysis (e.g., Zohar & Tenne-Gazit, 2008) might be usefully applied to better understand and intervene in the retention process. For example:
    - How are shared retention-related cognitions (e.g., perceived context) formed?
    - How do the structure and function of social ties (a) between leaders and unit members, and (b) among unit members, affect the emergence of specific types of unit variables important to retention (e.g., morale, norms, climate)?
    - How can leaders best intervene to prevent the emergence of maladaptive shared cognitions?
    - How can leaders best intervene to encourage the emergence of adaptive shared cognitions?

In sum, we have developed a leading edge model of company grade officer retention that generates many ideas for interventions and future research. Much was accomplished during the course of this project, but there are still many important questions to address. Because we were only able to empirically test a few hypotheses suggested by the model, we highly recommend conducting future research in which existing data are explored more fully as to their usefulness for testing additional hypotheses. In addition, we recommend that new data be collected for the specific purpose of testing the key paths in the model. The best research starts with a theory and then research is designed to test hypotheses that come out of that theory. We were only able to test very specific hypotheses with our intervention evaluation studies, and the archival databases that were available to us did not adequately measure many of the key concepts in the model. Although our model is based on solid theoretical reasoning and past research, it must be tested more completely for it to maximize its usefulness as a tool for (a) understanding the officer career continuance decision process, and (b) designing interventions to enhance officer retention.

References

Abelson, M. A. (1987). Examination of avoidable and unavoidable turnover. *Journal of Applied Psychology, 72*, 382-386.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Campbell, J. P. (1990). The role of theory in industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 1, pp. 39-73). Palo Alto, CA: Consulting Psychologists Press.

Crossley, C. D., Bennett, R. J., Jex, S. M., & Burnfield, J. L. (2007). Development of a global measure of job embeddedness and integration into a traditional model of voluntary turnover. *Journal of Applied Psychology, 92*, 1031-1042.

Dawis, R. V. (1991). Vocational interests, values, and preferences. In M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 2, pp. 833-869). Palo Alto, CA: Consulting Psychologists Press.

Day, A. L., & Livingstone, H.A. (2001). Chronic and acute stressors among military personnel: Do coping styles buffer their negative impact on health? *Journal of Occupational Health Psychology, 6*, 148-360

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Gade, P. A., Tiggle. R. B., & Schumm, W. R. (2003). The measurement and consequences of military organizational commitment in soldiers and spouses. *Military Psychology, 15*(3), 191-207.

Gencer, U. (2002). *An analysis of factors affecting the retention plans of junior male U.S. Army officers: Evidence from the 1999 DOD survey of active-duty personnel*. Unpublished Masters Thesis, Naval Postgraduate School, Monterey, California.

Gibson, J. L., & Tremble, T. R. (2006). *Influences of work-life support on officers' organizational commitment and negative work-family spillover* (ARI Research Note 2006-02). Arlington, VA: U. S. Army Research Institute for the Behavioral and Social Sciences.

Grandey, A. A., & Cropanzano, R. (1999). The conservation of resources model applied to work-family conflict and strain. *Journal of Vocational Behavior, 54*, 350-370.

Grimmer, M., & Oddy, M. (2007). Violation of the psychological contract: The mediating effect of relational versus transactional beliefs. *Australian Journal of Management, 32*, 153-174.

Halbesleben, J. R. B., & Bowler, W. M. (2007). Emotional exhaustion and job performance: The mediating role of motivation. *Journal of Applied Psychology 92*, 93–106

Hezlett, S. A., Johnson, J. W., & Babin, N. E. (2009). *Influence of the officer retention resource website on attitudes and retention intentions* (Draft ARI Technical Report). Arlington, VA: U. S. Army Research Institute for the Behavioral and Social Sciences.

Hogan, P. F., & Black, M. (1991). Reenlistment models: A methodological review. In C. Gilroy, D. K. Horne, & D. A. Smith (Eds.), *Military compensation and personnel retention: Models and evidence.* Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Holtom, B. C., & Inderrieden, E. J. (2006). Integrating the unfolding model and job embeddedness model to better understand voluntary turnover. *Journal of Managerial Issues, 18,* 435-452.

Holtom, B. C., Mitchell, T. R., Lee, T. W. (2006). Increasing human and social capital by applying job embeddedness theory. *Organizational Dynamics, 35,* 316-331.

Hom, P. W., Caranikas-Walker, F., Prussia, G. E., & Griffeth, R. W. (1992). A meta-analytical structural equations analysis of a model of employee turnover. *Journal of Applied Psychology*, 77, 890-909.

Hom, P. W., Tsui, A. S., Wu, J. B., Lee, T. W., Zhang, A. Y., Fu, P. P., & Li, L. (2009). Explaining employment relationships with social exchange and job embeddedness. *Journal of Applied Psychology*, *94*, 277-297.

Ilies, R., & Judge, T. A. (2003). On the heritability of job satisfaction: The mediating role of personality. *Journal of Applied Psychology, 4,* 750-759.

Jaros, S. J. (1997). An assessment of Meyer and Allen's (1991) three-component model of organizational commitment and turnover intentions. *Journal of Vocational Behavior, 51*, 319-337.

Jex, S. M., Bliese, P. D., Buzzell, S., & Primeau, J. (2001). The impact of self-efficacy on stressor-strain relations: Coping style as an explanatory mechanism. *Journal of Applied Psychology*, *86*, 401-409.

Johnson, J. W., Hezlett, S. A., Mael, F., & Schneider, R. J. (2009). *Recommendations for enhancing U.S. Army company grade officer career continuance* (ARI Research Note). Arlington, VA: U. S. Army Research Institute for the Behavioral and Social Sciences.

Johnson, J. W., Houston, J. S., Foldes, H. J., Cullen, M. J., Stellmack, A. L., Ervin, K. S., Schneider, R. J., & Duehr, E. E. (2009). *Development and evaluation of counseling training for commanders to enhance U.S. Army company grade officer career continuance* (ARI Research Note). Arlington, VA: U. S. Army Research Institute for the Behavioral and Social Sciences.

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits – self-esteem, generalized self-efficacy, locus of control, and emotional stability – with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology, 86*, 80-92.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology, 87*, 530-541.

Judge, T. A., Higgins, C. A., Thoresen, C. J., & Barrick, M. R. (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology, 52,* 621-652.

Kammeyer-Mueller, J. D., Judge, T. A., & Scott, B. A. (2009). The role of core self-evaluations in the coping process. *Journal of Applied Psychology, 94*, 177-195.

Kammeyer-Mueller, J. D., Wanberg, C. R., Glomb, T. M., & Ahlburg, D. (2005). The role of temporal shifts in turnover processes: It's about time, *Journal of Applied Psychology, 90,* 644-658.

Kerr, S. A. (1997). *Retention of first-term and second-term Marine Corps enlisted personnel.* Unpublished masters thesis, Naval Postgraduate School.

Khoo, S-T, West, S. G., Wu, W., & Kwok, O. M. (2006). Longitudinal methods. In M. Eid, & E. Diener, (Eds). *Handbook of multimethod measurement in psychology* (pp. 301-317). Washington, DC: American Psychological Association.

Langkamer, K. L., & Ervin, K. S. (2009). Psychological climate, organizational commitment and morale: Implications for Army captains' career intent. *Military Psychology, 20,* 219-236.

Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*, 123-133.

Lee, T. W., & Mitchell, T. R. (1994). An alternative approach: The unfolding model of voluntary employee turnover. *Academy of Management Review, 19*, 51-89.

Lee, T. W., Mitchell, T. R., Holtom, D. C., McDaniel, L. S., & Hill, J. W. (1999). The unfolding model of voluntary turnover: A replication and extension. *Academy of Management Journal, 42*, 450-462.

Lee, T. W., Mitchell, T. R., Sablynski, C. J., Burton, J. P., & Holtom, B. C. (2004). The effects of job embeddedness on organizational citizenship, job performance, volitional absences, and voluntary turnover. *Academy of Management Journal, 47*, 711-722.

Mackin, P. C., Mairs, L. S., & Hogan, P. F. (1995). *Estimation of retention parameters for the prototype officer personnel inventory, cost and compensation model* (ARI Study Report 96-01). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Madill, A., & Gough, B. (2008). Qualitative research and its place in psychological science. *Psychological Methods, 13*, 254-271.

Mael, F. A., Alonso, A., Johnson, J. W., & Babin, N. E. (2009). *Development and evaluation of a video featuring former U.S. Army officers for the purpose of enhancing company grade*

officer career continuance (ARI Research Note). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Mael, F. A., & Ashforth, B. E. (1992). Alumni and their alma mater: A partial test of the reformulated model of organizational identification. *Journal of Organizational Behavior, 13,* 103-123.

Martin, P. M., & Brantley, P. J. (2004). Stress, coping, and social support in health and behavior. In J. M. Raczynski, & L. C. Leviton, (Eds), *Handbook of clinical health psychology: Volume 2. Disorders of behavior and health* (pp. 233-267). Washington, DC: American Psychological Association.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52,* 397-422.

McGee, G. W., & Ford, R. C. (1987). Two (or more?) dimensions of organizational commitment: Reexamination of the affective and continuance commitment scales. *Journal of Applied Psychology, 72,* 638-641.

Melamed, S., Shirom, A., Toker, S., Berliner, S., & Shapira, I. (2006). Burnout and risk of cardiovascular disease: Evidence, possible causal paths, and promising research directions. *Psychological Bulletin, 132,* 327-353.

Meyer, J. P., & Allen, N. J. (1997). *Commitment in the workplace: Theory, research, and application.* Thousand Oaks, CA: Sage Publications.

Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior, 61,* 20-52.

Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablynski, C. J., Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover. *Academy of Management Journal, 44,* 1102-1121.

Mitchell, T. R., & Lee, T. W. (2001). The unfolding model of voluntary turnover and job embeddedness: Foundations for a comprehensive theory of attachment. *Research in Organizational Behavior, 23,* 189-246.

Murray, M. (2003). Narrative psychology and narrative analysis. In P. M. Camic, J. E. Rhodes, & L. Yardley (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design* (pp. 95-112). Washington, DC: American Psychological Association.

Ong, A. D., Bergeman, C. S., Bisconti, T. L., & Wallace, K. A. (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology, 91,* 730-749.

Park, C. L., & Adler, N. E. (2003). Coping style as a predictor of health and well-being across the first year of medical school. *Health Psychology, 22*, 627-631.

Pate, J., & Malone, C. (2000, February). Post-'psychological contract' violation: The durability and transferability of employee perceptions: The case of TimTec. *Journal of European Industrial Training, 24(2-4),* 158-166.

Podsakoff, N. T., LePine, J.A., & LePine, M.A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: A meta-analysis. *Journal Applied Psychology, 92*, 438-454.

Posig, M., & Kickul, J. (2003). Extending our understanding of burnout: Test of an integrated model in nonservice occupations. *Journal of Occupational and Health Psychology, 8*, 3-19.

Reichardt, C. S. (1979). The statistical analysis of data from nonequivalent group designs. In T. D. Cook & D. T. Campbell, D. T. *Quasi-experimentation: Design and Analysis Issues for Field Settings.* (pp. 147-205). Boston: Houghton Mifflin Company.

Rhoades, L., Eisenberger, R., & Armeli, S. (2001). Affective commitment to the organization: The contribution of perceived organizational support. *Journal of Applied Psychology, 86,* 825-836.

Robinson, S., & Morrison, E. (2000). The development of psychological contract breach and violation: A longitudinal study. *Journal of Organizational Behavior, 21*, 525-546.

Rusbult, C. E., & Farrell, D. (1983). A longitudinal test of the investment model: The impact on job satisfaction, job commitment, and turnover of variations in rewards, costs, alternatives and investments. *Journal of Applied Psychology, 68*, 429-438.

Schneider, R. J., Johnson, J. W., Cullen, M., Weiss, H. M., Ilgen, D. R., & Borman, W. C. (2006). *A preliminary model of company grade officer retention* (Institute Report #550). Minneapolis: Personnel Decisions Research Institutes, Inc.

Shirom, A. (2003). Job-related burnout. In J.C. Quick & L. Tetrick (eds). *Handbook of occupational health psychology* (pp. 245-265). Washington, DC: American Psychological Association.

Tay, C. (2008). *Occupational turnover intention: Effects of multidimensional commitment, burnout and interactions.* Poster presented at the 23rd Annual Conference of the Society for Industrial and Organizational Psychology, San Francisco, California.

Toker, S., Shirom, A., Shapira, I., Berliner, S., & Melamed, S. (2005). The association between burnout, depression, anxiety, and inflammation biomarkers: C-reactive protein and fibrinogen in men and women. *Journal of Occupational Health Psychology, 10*, 344-362.

Warner, J. T., & Goldberg, M. S. (1984). The influence of non-pecuniary factors on labor supply: The case of Navy enlisted personnel. *Review of Economics and Statistics, 66,* 26-35.

Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin, 134*, 163–206.

Weiss, H. M., Ilgen, D. R., & Borman, W. C. (2006). *A preliminary model of junior enlisted continuance* (Institute Report #551). Tampa, FL: Personnel Decisions Research Institutes, Inc.

Weiss, H. M., Ilgen, D. R., & Borman, W. C. (2009). *A model of junior enlisted career continuance* (Institute Report #644). Tampa, FL: Personnel Decisions Research Institutes, Inc.

Weiss, H. M., MacDermid, S. M., Strauss, R., Kurek, K. E., Le, B., & Robbins, D. (2003). *Retention in the Armed Forces: Past approaches and new research directions*. http://www.cfs.purdue.edu/mfri/pages/research/ Retention_Report.pdf

Wilcove, G. L., Schwerin, M. J., & Wolosin, D. G. (2003). An exploratory model of quality of life in the U.S. Navy. *Military Psychology, 15*, 133-152.

Zohar, D., & Tenne-Gazit, O. (2008). Transformational leadership and group interaction as climate antecedents: A social network analysis. *Journal of Applied Psychology, 93*, 744-757.